SOUTHERN BLACKSTONE AVENUE SMART MOBILITY STRATEGY

DRAFT REPORT

Prepared for

CITY OF FRESNO

Submitted by

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Contents

Executive Summary 3
1. Introduction 25
1.1 Corridor History 26
1.2 Existing Conditions Summary 26
1.3 Planning and Policy Context 30
1.4 Smart Mobility Strategy Goals and Objectives 35
1.5 Senate Bill 743 36
2. Community Engagement 37
2.1 Project Outreach 37
2.2 Community Engagement 38
2.3 Community Issues and Goals 41
3. Complete Streets Framework and Design Concepts 43
3.1 Complete Streets Design Framework 43
3.2 Recommendations for Corridor-wide Improvements 50
3.3 Initial Feasibility Assessment of Potential Lane Reductions 62
3.4 Design Concept Options by Corridor Segment 82
4. Implementation Strategy 101
4.1 Overall Approach to Implementation Phasing and Funding 101
4.2 Level-of-Magnitude Construction Costs 104
4.3 Locally Feasible Financing Strategies 106
Appendix 117
High-Level Estimates of Probable Costs .....
Matrix of Funding Mechanisms .....

Executive Summary

Welcome to the Southern Blackstone Smart Mobility Strategy (Strategy), a community-led vision to improve the Blackstone Avenue Corridor. This executive summary offers an overview of the Strategy's content, highlighting key approaches and recommendations. The Strategy was developed to provide recommendations for both near-term and long-term multi-modal and streetscape improvements for the City, private sector actors, longstanding institutions, and residents to consider and utilize in future planning and design as well as the implementation phase.

Corridor History

Blackstone Avenue stretches from the most northern edge of Downtown and extends north for approximately nine miles to Fresno's suburban neighborhoods. The project area for the Southern Blackstone Avenue Smart Mobility Strategy (Strategy) primarily focuses on 2.5 miles of the Blackstone Avenue/Abby Street Corridor which extends from Dakota Avenue in the north and Highway 180 in the south. In its past, Blackstone Avenue initially provided access to a residential enclave built for wealthy attorneys in the late 1800s, which why it was named after the famous English jurist Sir William Blackstone, whose judicial theories were studied and applied by Founding Fathers of the United States. With the invention of the automobile, residential and commercial development continued north, and the Corridor became an important link between Downtown and places north of Fresno, such as Madera County and Yosemite. Eventually Blackstone Avenue became part of Highway 41 and, as a consequence, was widened and designed to the state highway standards of the time. With construction of the new Highway 41 one-quarter mile to the east of Blackstone Avenue, the street is no longer part of the state route system and now owned and maintained by the City of Fresno.

Demographic Information

The Corridor represents a microcosm of high poverty rates within the city of Fresno. The poverty rate within the Corridor is approximately 34% as compared to 29% for Fresno as a whole. The median household income is less than $32,000 compared to approximately $42,000 for the city. Ten of the eleven census tracts along the corridor have poverty rates above the average for the city of Fresno, which is approximately 150% higher than the state of California's poverty rate. The Corridor and adjoining commercial areas and residential neighborhoods one half mile east and west of Blackstone Avenue, encompass over 2,100 businesses and 50,000 residents.

Project Purpose and Planning Context

The City of Fresno's General Plan envisions the revitalization of the central core area and of corridors leading into the Downtown. It hopes to locate substantial growth in the Downtown, in activity centers, and along corridors, specifically the Blackstone Avenue Corridor. Blackstone Avenue is Fresno's most prominent street corridor and part of the first phase of the bus rapid transit (BRT) system. The Complete Streets Framework to balancing the needs of pedestrians, bicyclists, transit riders, and drivers presented in this Strategy represents a building block in the City's overarching vision for Blackstone Avenue and the three activity centers located in the Blackstone Avenue/Abby Street Corridor. The three activity centers are:

- Shields/Manchester Activity Center – includes the Manchester Center Mall and extends from Dakota Avenue to Princeton Avenue.
- Weldon/Fresno City College Activity Center – includes Ratcliffe Stadium, and Fresno City College, covering the corridor from Princeton Avenue to Hedges Avenue.
- Olive/Tower Gateway Activity Center – includes the one-way couplet of Blackstone Avenue and Abby Street, Susan B. Anthony Elementary School, and ends at Highway 180 overpass.

In order to promote revitalization and transit-oriented development (TOD), the City changed the zoning along the Blackstone Avenue Corridor from auto-oriented commercial zoning designations to pedestrian-oriented mixed-use zoning. Mixed-use zoning designations are to transform auto-oriented boulevards and corridors into vibrant, diverse, and attractive corridors that support a mix of pedestrian-oriented retail, office and residential uses in order to achieve an active social environment within a revitalize streetscape. The Development Code calls for buildings to be situated close to the main street with a maximum setback of 10 feet, and have active frontages, particularly in close proximity of BRT stops. To complement the envisioned land use changes and built environment, the multi-modal improvements presented in this Strategy, are intended to make the street safer and more comfortable to use for pedestrians, bicyclists and transit riders, to improve non-motorized and transit-based access to shopping, services, and employment, improve air quality by reducing vehicle miles traveled (VMT), and to create a sense of place and identity for the street that residents and visitors alike can relate to.

The Southern Blackstone Avenue Smart Mobility Strategy provides the City of Fresno with a community-driven vision and framework for implementing such a re-design and along with it many of the state, regional, and City policies and goals discussed in Section 1.3 of the Strategy. As a result, the Strategy and its Complete Streets Framework were prepared to address the following objectives:

- Increase access and safety along the Corridor for all travel modes and users, including the elderly, disabled, low-income, students and youth.
- Address deficiencies in the existing street design that are incompatible with the planned land uses outlined in the General Plan and impact business opportunities and performance in the identified activity centers along the Corridor.
- Recommend multi-modal access and safety improvements for pedestrians and bicyclists as well as transit riders.
- Recommend potential sidewalk and streetscape enhancements to support pedestrian comfort, access to transit, and access to businesses and services.
- Identify potential treatments that support the management of traffic speeds within activity centers along the corridor.
- Consider on-street and off-street parking in the context of recommended multi-modal improvements.
- Identify opportunities for gateway improvements and wayfinding signage.

- Recommend locally feasible implementation and funding strategies for recommended multi-modal improvements.

Using a pilot study for further evaluation of the most critical recommended improvements, the City will be able to test out temporary changes to the public realm at lower implementation cost before installing more costly permanent improvements. The recommended near-term improvements focus on the area between the Blackstone Avenue/Shields Avenue and Blackstone Avenue/McKinley Avenue intersections where the Fresno City College (FCC) and Manchester Center form large-scale destinations and anchors at either end of this segment of the Corridor.

Figure E.1: Flyer advertising June 2018 Workshops

Community Engagement

City planning staff and the project team engaged residents and stakeholders in an intensive and highly participatory public process over the course of nine months to assess and document conditions for all travel modes (walking, bicycling, transit and driving) and users (youth, seniors, people with disabilities, residents, Spanish speakers, patrons and businesses). Together, they identified shared values and concerns, and explored and helped prioritize proposed enhancements for Blackstone Avenue.

The community engagement process included the following outreach activities:

- 8,300 flyers were distributed for community meetings, design workshops, and input sessions
- 15 neighborhoods were canvassed with over 1,700 residential and commercial doors being knocked on
- 1,400 reminder calls were placed to individual residences and businesses adjacent to the corridor
- The project was featured in 3 E-News distributions that reached 2,000 people with each mailing
- Social media posts were made on the City's and Better Blackstone Association's Facebook page reaching over 4,000 people
- Multiday Charrette – *Walk Audit and Workshop #1*: 75 participants viewed a presentation on existing conditions and principles of Complete Streets followed by a walk audit along the corridor, and small group feedback and discussion
- Multiday Charrette –*Stakeholder Meetings: Conducted meetings with stakeholders, including Blackstone property owners, real estate developers, City Councilmembers, State Center Community College District, Fresno City College, Susan B. Anthony and Heaton Elementary Schools, and Fresno Unified School District Parent University.*
- Multiday Charrette –*Workshop #2*: 114 people attended the final day of the multiday charrette where team members reviewed initial concepts that led to group discussion
- Workshop #3 (August 2018): 77 participants broke into small groups to weigh in on proposed improvements between Shields and Hedges Avenues
- Drop-In Open House (November 2018): 50 participants were able to view refined design concepts for both near-term and long-term improvements along the Blackstone Avenue Corridor
- The project team also met with stakeholder groups for briefings and feedback throughout the process. The groups included were Fresno Department of Public Works, Fresno Police Department, Fresno Area Express (FAX), Bicycle and Pedestrian Advisory Committee.

Dominant themes from the outreach activities were the need for pedestrian and bicycle improvements, trees and shade, lighting, comfortable public spaces and reduction of the dominance of automobiles were recurrent themes throughout the engagement process. A majority of outreach participants expressed interest and willingness to convert on-street parking and one lane in each direction to allow for wider sidewalks, trees and safe areas for riding bicycles on Blackstone (see Chapter 2 for more details).

Complete Streets Framework and Design Concepts

The Complete Streets Framework and corridor design concepts presented in this Strategy are a direct outcome of the City's policies and goals and the community input for desired improvements received during the public and stakeholder outreach process (see Chapter 2).

The existing perception of large thoroughfares or "big streets", like the Blackstone/Abby Corridor, is that they include multiple travel lanes in each direction designed for moving large number of cars through a particular area of a city. However, until recently it was routinely overlooked that such streets also need to and can serve as providing connections between people that are not predicated on the use of cars and as places that foster community appeal, innovation, enterprise, and health. In order for big streets, like Blackstone Avenue, to fulfill this promise, they need to be design or, in this case, re-designed and constructed to be comfortable and safe for all users.

What Are Complete Streets?

Complete Streets are streets for everyone. They are designed and operated to enable safe access for all users, including pedestrians, bicyclists, motorists and transit riders of all ages and abilities. Complete Streets make it easy to cross the street, walk to shops, and bicycle to work. They allow buses to run on time and make it safe for people to walk to and from train stations.

Source: Smart Growth America/National Complete Streets Coalition

As such, balancing the transportation, safety, and comfort needs of all users, including pedestrians, bicyclists, and transit riders as well as people driving automobiles and trucks is the foundational tenet of the Complete Streets design approach. In addition, a Complete Street serves people of all ages and abilities, irrespective of their social or economic status.

As is illustrated by the typical existing cross-sections of the Blackstone Avenue/Abby Street Corridor (see ***Figures E.2 through E.6***), today the overwhelming majority of the right-of-way is currently dedicated to moving automobiles and trucks. The street lacks dedicated bicycle facilities and space for pedestrians traveling along the corridor and access to transit stops is limited to narrow sidewalks (6-foot wide typical north of Hedges Avenue and 10-foot wide along most portions of Blackstone and Abby Street south of Hedges) that are often further narrowed by local obstructions such as utility and signal poles, fire hydrants, and fences and other items encroaching from adjacent private properties into the public right-of-way.

Based on the aim of Complete Streets to accommodate the needs of all users and the fact that the available space within the public right-of-way is limited and currently allocated mostly to serve automobiles, the fundamental question at the beginning of the process was to determine how space can be created for accommodating meaningful improvements for pedestrians and bicyclists. As mentioned above, a majority of outreach participants expressed interest and willingness to convert on-street parking and one lane in each direction to allow for wider sidewalks, trees and safe areas for riding bicycles on Blackstone. The notion of redistributing space currently assigned to the use by automobiles to use by pedestrians, bicyclists, and transit riders, became the basis for development of the initial, draft, and refined design concepts that were presented to the community.

As a result, the following two strategies are at the core of the Complete Street Framework for Blackstone Avenue/Abby Street Corridor:

- Rebalancing the allocation of space within the Blackstone Avenue/Abby Street rights-of-way.
- Speed Management throughout the Corridor.

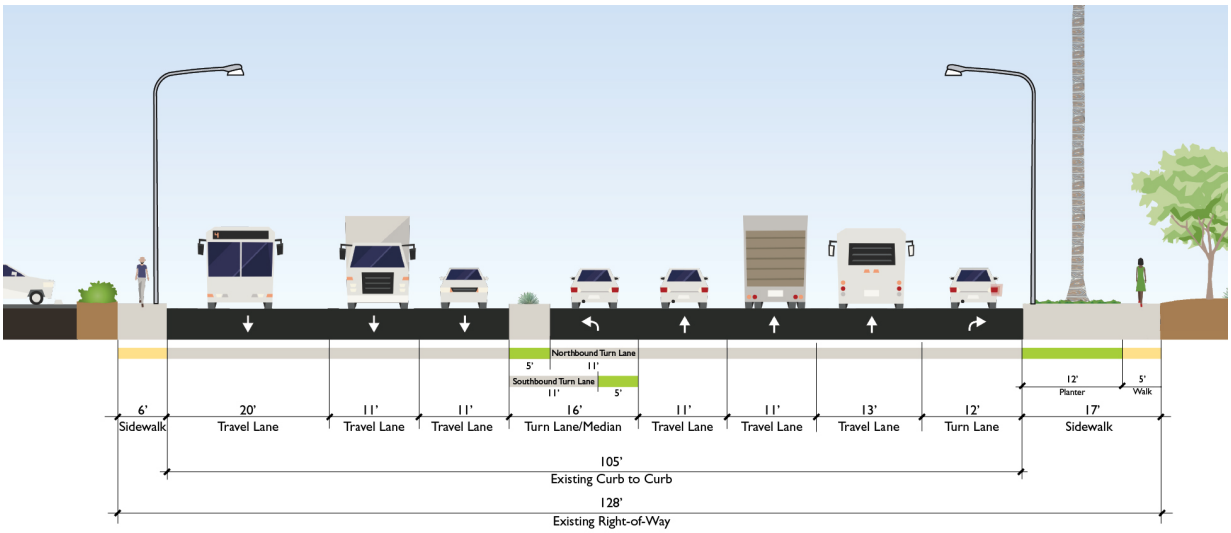


Figure E.2: Existing Conditions Cross-section: Dakota Avenue to Dayton Avenue (facing North)

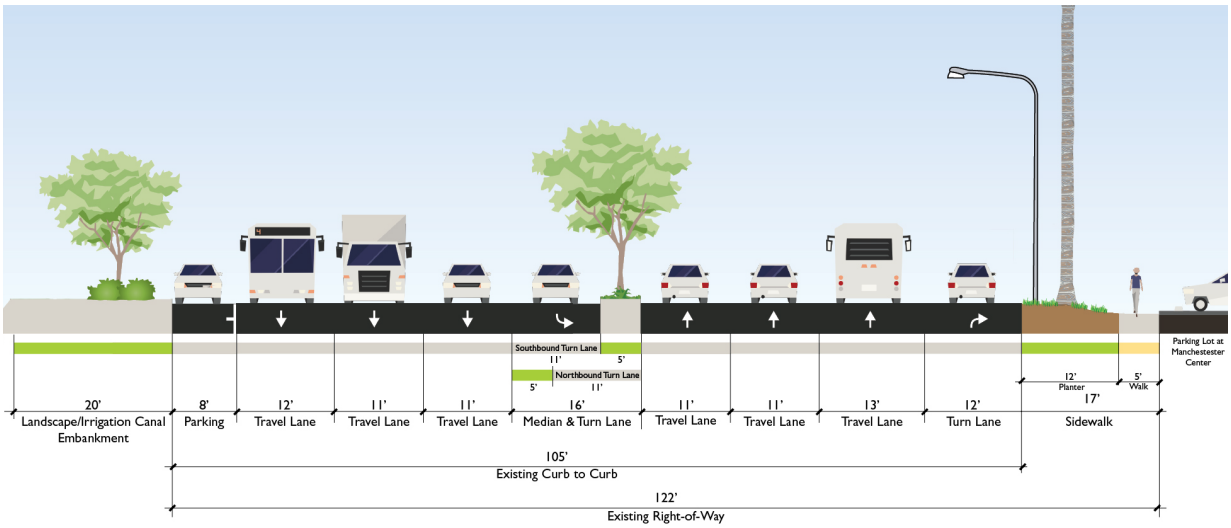


Figure E.3: Existing Conditions Cross-section: Dayton Avenue to Shields Avenue (facing North)

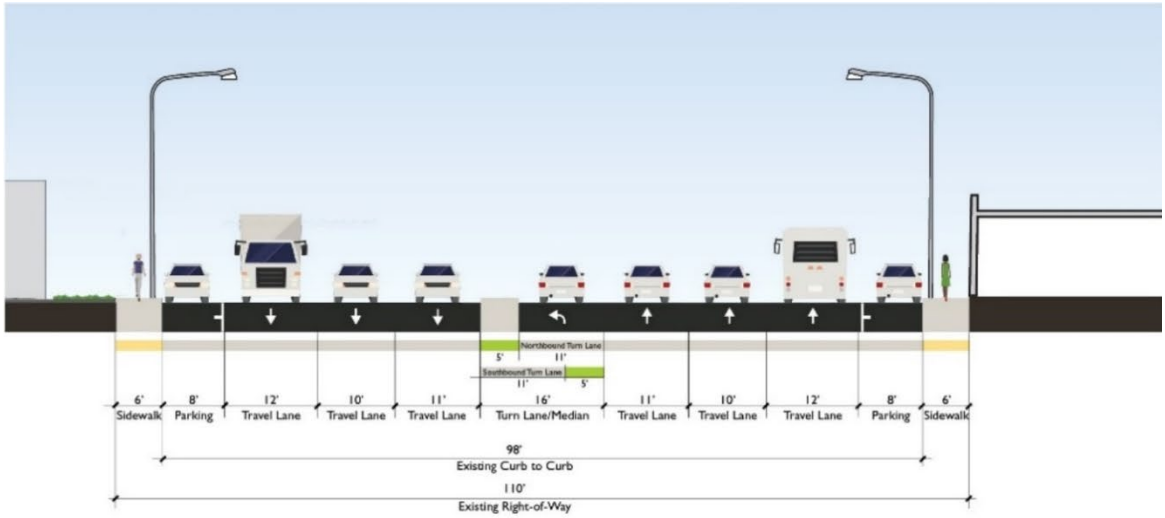


Figure E.4: Existing Conditions Cross-section: Shields Avenue to Hedges Avenue (facing North)

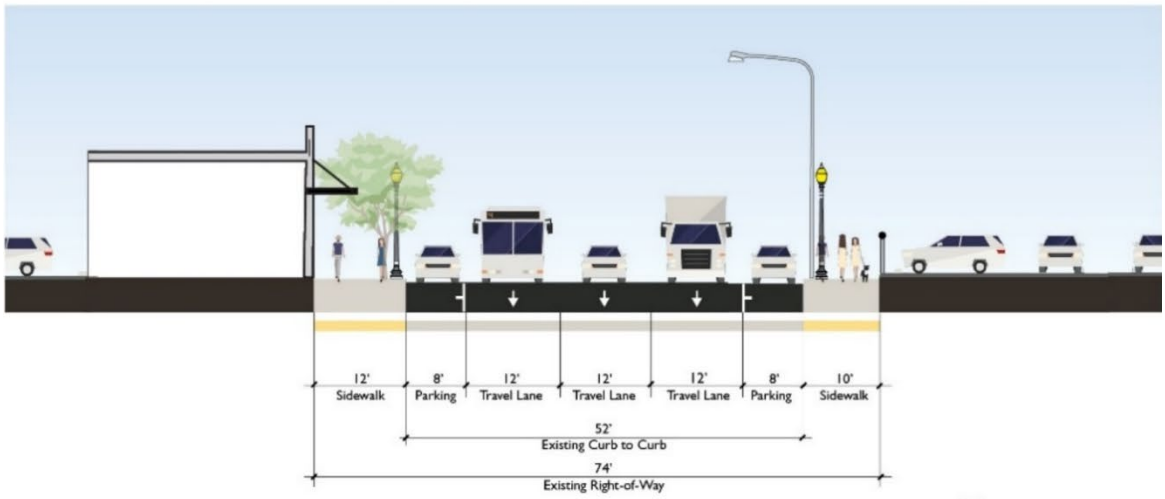


Figure E.5: Existing Conditions Cross-section: Hedges Avenue to SR 180 – Blackstone Avenue (facing North)

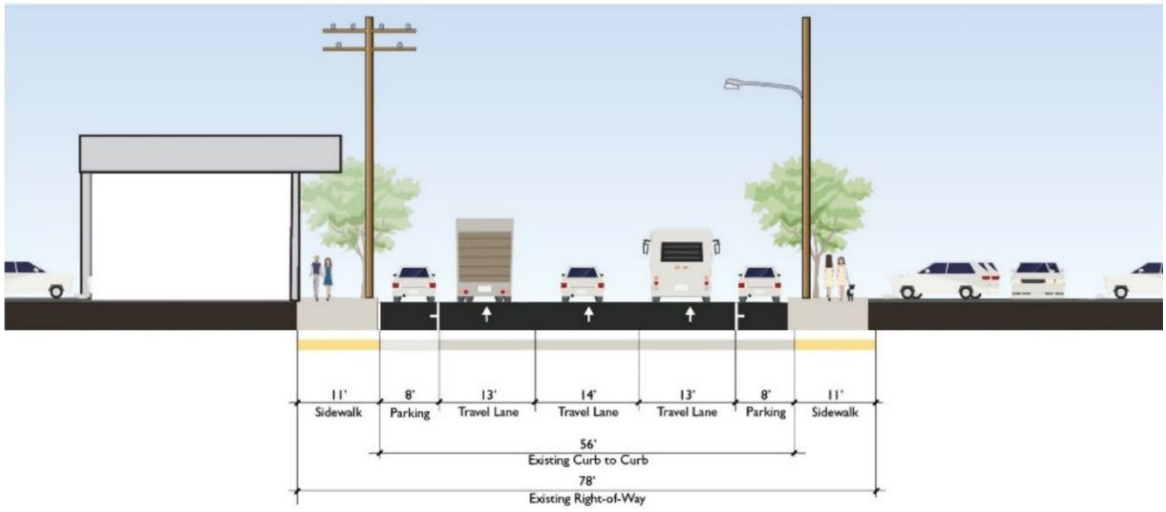


Figure E.6: Existing Conditions Cross-section: Hedges Avenue to SR 180 – Blackstone Avenue (facing North)

Rebalancing the Allocation of Space within the Public Right-of-Way: As discussed in *Chapter 2*, those who participated in the public outreach events for the study strongly favored that both, the walking and bicycling conditions be improved along the length of the Corridor as opposed to improving the conditions for just one of the two modes. On this basis, outreach participants favored initial concepts, particularly for the area south of Shields Avenue, that reallocated space currently used for travel lanes and parking to accommodate the desired pedestrian, bicycle, and placemaking improvements. Based on the City's goals for the project area, initial input from the community, and best practices for multi-modal street design, initial concepts for rebalancing the Corridor's public right-of-way were prepared and then further refined based on additional community input and feedback from the Fresno Area Express (FAX), the Bicycle and Pedestrian Advisory Committee, and the City's Department of Public Works and the Development and Resource Management Department.

In order to accommodate the envisioned pedestrian and bicycle improvements, the concept designs (see Segment-Specific Recommendations below) include the removal of one travel lane in each direction, including throughout the couplet area. This approach to gaining space within the existing right-of-way is supported by an initial, high-level review of readily available traffic counts for traffic and turn volumes on the Corridor, the City's current level-of-service (LOS) related policies, and current and projected future traffic volumes on the Blackstone Avenue/Abby Street and parallel corridors. Results of the analysis show that all of the roadway segments along Blackstone Avenue are projected to operate at acceptable levels of service with the removal of one (1) travel lane with the exception of the roadway segment between Clinton Avenue and McKinley Avenue. It should be noted that the roadway segment will achieve acceptable levels of service through the year 2035 (see *Section 3.3* for an in-depth discussion).

Speed Management: The speed of traffic and the degree to which pedestrians and bicyclists are buffered from fast moving traffic are key determinants for the level of comfort and safety persons experience that walk and cycle on the Blackstone Avenue/Abby Street Corridor. The relationship between speed and pedestrian safety has been examined in many studies. *Figure E.7* specifically highlights the relationship between a vehicle's speed and a pedestrian's chances of survival in case of being hit by a car. At 40 miles per hour, which is the posted speed limit along the length of the Corridor, the chances of survival for a pedestrian hit is one in ten. The figure also indicates that at lower speeds, the pedestrian survival rate exponentially increases.

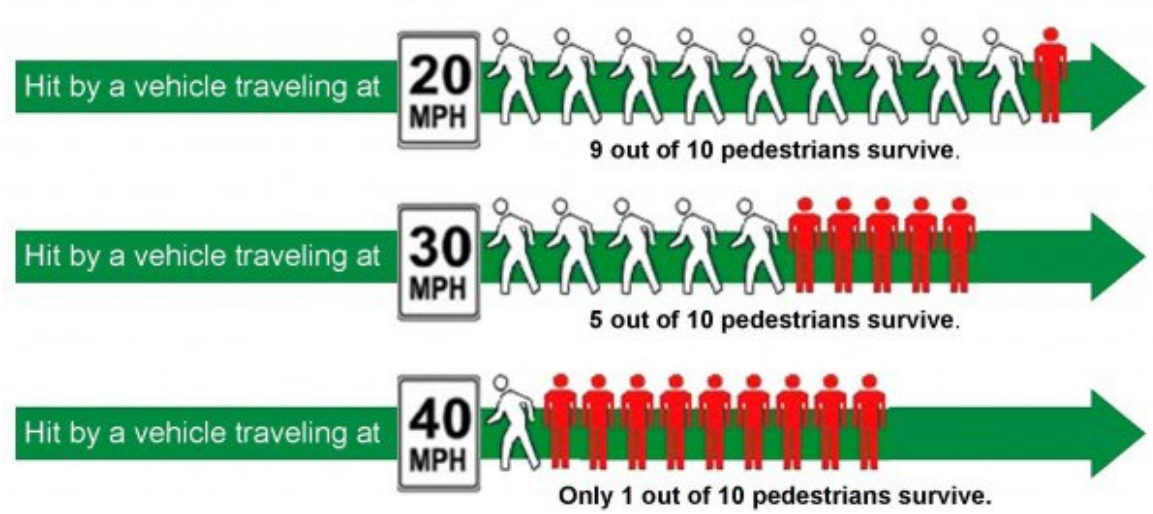


Figure E.7: Posted Speeds relationship with Pedestrian Safety.

Source: *W.A. Leaf and D.F. Preusser, "Literature Review on Vehicle Travel Speeds and Pedestrian Injuries Among Selected Racial/Ethnic Groups," US Department of Transportation, National Highway Traffic Safety Administration (1999).*

In addition to providing the safety benefits for pedestrians and bicyclists discussed above, the lowering of the posted speed limit is also a factor in the envisioned reduction in the number of lanes (see Rebalancing the Allocation of Space above) and in the desired increase in safe crossings across the Corridor.

Corridor-wide Recommendations

In addition to the core concepts of rebalancing the right-of-way and a reduction of the speed limit discussed above, there are a number of design concepts and Complete Street best practices that are commonly recommended for the type of urban street and transit corridor that is described in the City's land use and transportation goals.

Pedestrian and Bicycle-friendly Intersections: Improving the safety and convenience of conditions for pedestrians and bicyclists at intersections is a critical component of the recommendations for corridor-wide improvements.

- Frequency of Safe Crossings: Future design and implementation phases for the envisioned near- and long-term improvements should include the addition of new crosswalks with the goal to reduce the distance between safe crosswalk locations initially from one quarter to one eighth of a mile, with additional crosswalks later being added in between these locations where this is supported by future development, as increased presence of pedestrians and bicyclists, and other criteria used by the City of Fresno in their crosswalk warrant process.

  A comprehensive study of all unsignalized dedicated left-turn lanes north of Hedges Avenue should be conducted to support this goal. Such a study would determine which of the existing left-turn lanes can be shortened or eliminated. In locations where left-turn lanes can be eliminated, the gained space can be used for near-term and long-term improvements that include median refuges, landscaping, and potential locations for the installation of a pedestrian hybrid beacons (PHBs).
- Pedestrian and Bicycle-friendly Intersection Improvements: The following pedestrian-, bicycle-, and transit-friendly intersection treatments that should be considered when the detailed designs for intersections that are compatible with the Strategy's overall Corridor vision are developed.

  - High visibility striping of crosswalks at signalized and unsignalized intersections
  - Directional curb ramps
  - Median refuges
  - Curb extensions (bulb-outs)
  - Tight corner curb radii
  - Pedestrian countdown signal heads[1]
  - Accessible pedestrian signals (APS)[2]
  - Leading Pedestrian Interval
  - Separate bicycle signal phase and signal heads
  - Protected intersections
  - Transit Signal Priority (TSP)[3]

During the future development of detailed plans for the near-term improvements described in this Strategy (see Section 3.4), consideration should also be given to the following potential near-term intersection treatment concepts:

[1] This improvement has already been funded and will be implemented by the City of Fresno over the coming years.

[2] This improvement has already been funded and will be implemented by the City of Fresno over the coming years.

[3] TSP already has been deployed along the Blackstone Avenue/Abby Street Corridor along with implementation of the BRT.

- Use of interim treatments that utilize cost effective materials, such as paint and "soft-hit" plastic posts (often referred to as "paint & plastic" improvements) to delineate the approximate locations of permanent intersection improvements, such as curb extensions on cross streets, median refuges, and other "islands" that buffer spaces occupied by crosswalks and bikeways (see **Figure E.8**).
- Creation of temporary median refuges for pedestrians at the end of existing median noses.
- Study of early implementation of pedestrian hybrid beacons (PHBs) in potential locations identified in this Strategy.

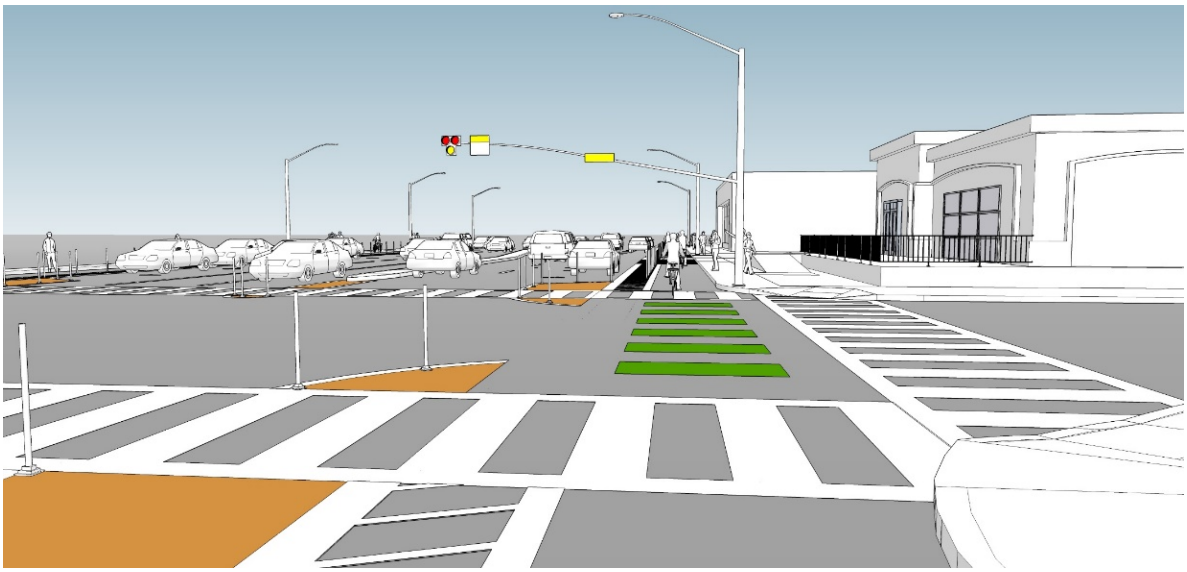


Fig E.8: Example of soft-hit posts as curb-extensions, median-refuges

Universal Design: Universal design is different from the requirements set by Federal and State accessibility standards in that it strives to exceed minimum requirements when doing so further increases accessibility and usability of the respective environment for people of an even broader range of age and ability as compared to an environment in which only ADA minimums are met. This Strategy will present improvements at the concept design level, with most of the design details that determine the degree and quality of accessibility still needing to be detailed during subsequent design phases. It is therefore important that the future detailed design of the envisioned improvements, and particularly the design of the future intersection and crosswalk improvements, incorporate accessibility features following best practices for accessibility of public rights-of-way.

Streetscape Improvements: Street trees that provide shade and improved lighting are the streetscape improvements identified during the community outreach events for this Strategy as most desirable. Both provide a broad range of benefits to the overall street design and pedestrians and bicyclists in particular.

- New street trees should be planted along the length of the Corridor as illustrated in the long-term cross sections.
- Pedestrian-scale light fixtures should be introduced along the length of the Corridor and supplemented with additional fixtures of the same style where they already exist between Olive Avenue and Highway 180.
- Pedestrian wayfinding signage should be introduced with implementation of the recommended long-term pedestrian improvements in locations where pedestrian-oriented districts emerge along the Blackstone/Abby Corridor and where civic destinations are located in proximity to existing BRT stops.
- Bicycle wayfinding signage should be introduced with implementation of the recommended long-term bicycle improvements along the Blackstone/Abby Corridor.

- Bicycle parking (e.g. bicycle racks) should be provided in locations along the Corridor where existing or planned retail or civic uses attract larger numbers of cyclists.

The following is a list of opportunities for streetscape improvements that can be combined with the recommended near-term improvements:

- Work with property owners and civic institutions to explore the placement of Blackstone Avenue/Abby Street-branded banners on new light posts that the City is installing in 2019.
- Work with property owners to plant trees in existing landscape buffers adjacent to existing sidewalks.
- Work with property owners to screen existing parking lots or paved areas backing onto the sidewalk with low walls, greened fences, or trellises.
- Work with property owners to create temporary "Pavement-to-Parks"-type improvements, such as pop up parks, hosting of food trucks or small-scale local community events.

Transit Passenger Environment at FAX Q Line Stops: Under the envisioned long-term improvements, all existing Q line's Bus Rapid Transit (BRT) stops and amenities would be relocated to a new permanent transit passenger area that is located next to the outermost travel lane. The relocated stops will provide an increased amount of space to BRT passengers compared to current conditions.

Reducing the Number and Width of Driveways: As land uses along the Blackstone Avenue/Abby Street Corridor redevelop and the street is reconfigured following the near- and long-term design concepts, it is recommended to utilize access management strategies and tools that reduce the number of driveways along the Corridor.

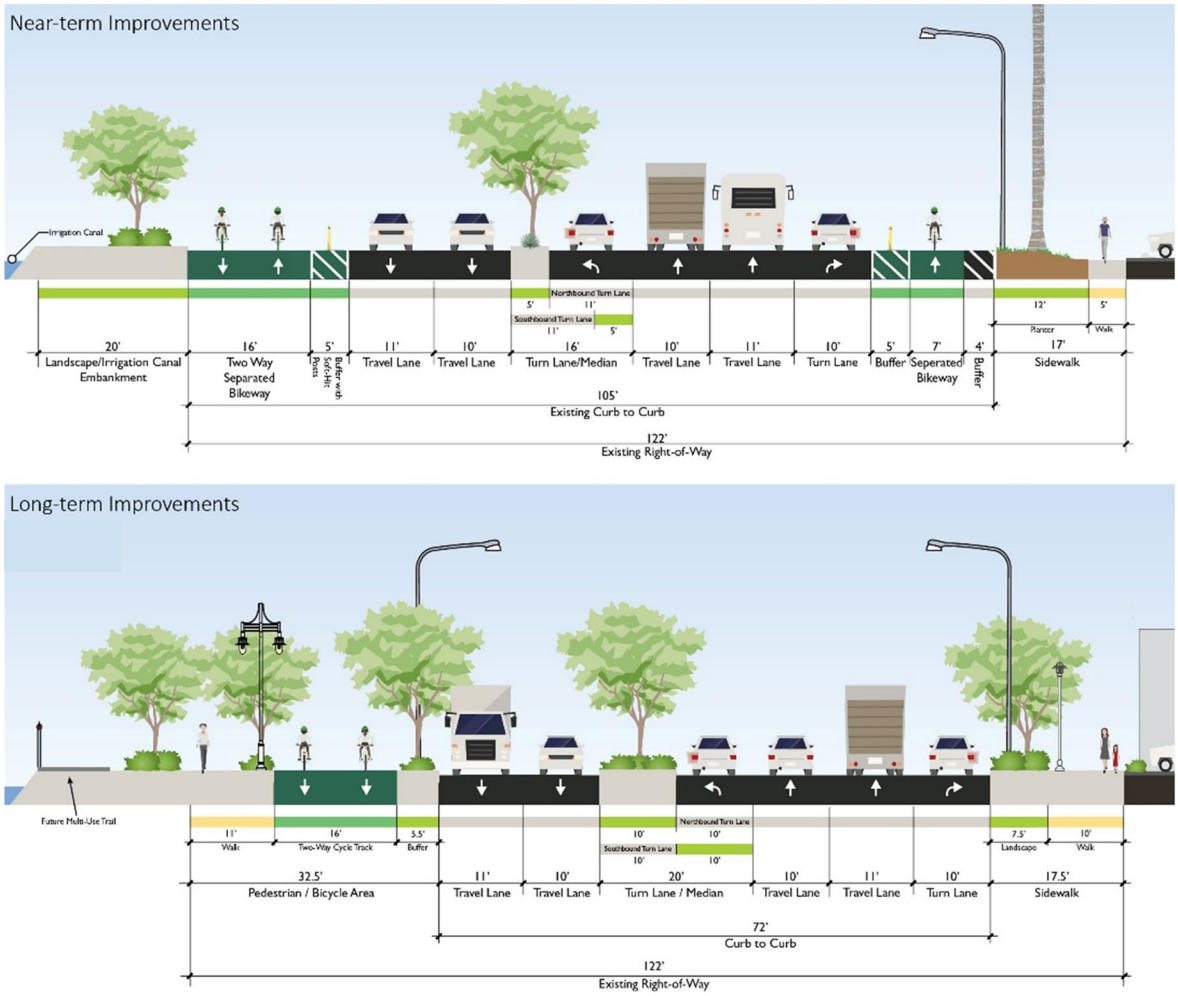
Segment-Specific Recommendations

In addition to the corridor-wide improvements outlined above, the Strategy's Complete Streets Framework includes near- and long-term design concepts and recommendations for multi-modal improvements that are specific to the identified corridor segments and sub-segments (where applicable):

- North of Shields (Dakota Avenue to Shields Avenue)
- Shields Avenue to Hedges Avenue
- Hedges Avenue to Highway 180

North of Shields Avenue

The envisioned long-term improvements include the introduction of a two-way separated bikeway on the west side of the street, reconfigured or widened sidewalks, a widened landscape median, and potential future implementation of a traffic signal or pedestrian hybrid beacon (HAWK) at Garland Avenue. Space for these improvements is gained by reducing the number of travel lanes in each direction from three to two and by removing the parking lane on the west side of the street. If it is determined during future planning and design phases that two one-way separated bikeways located on each side of the street are preferable over the recommended two-way approach, such a configuration can also be accommodated within the existing right-of-way.



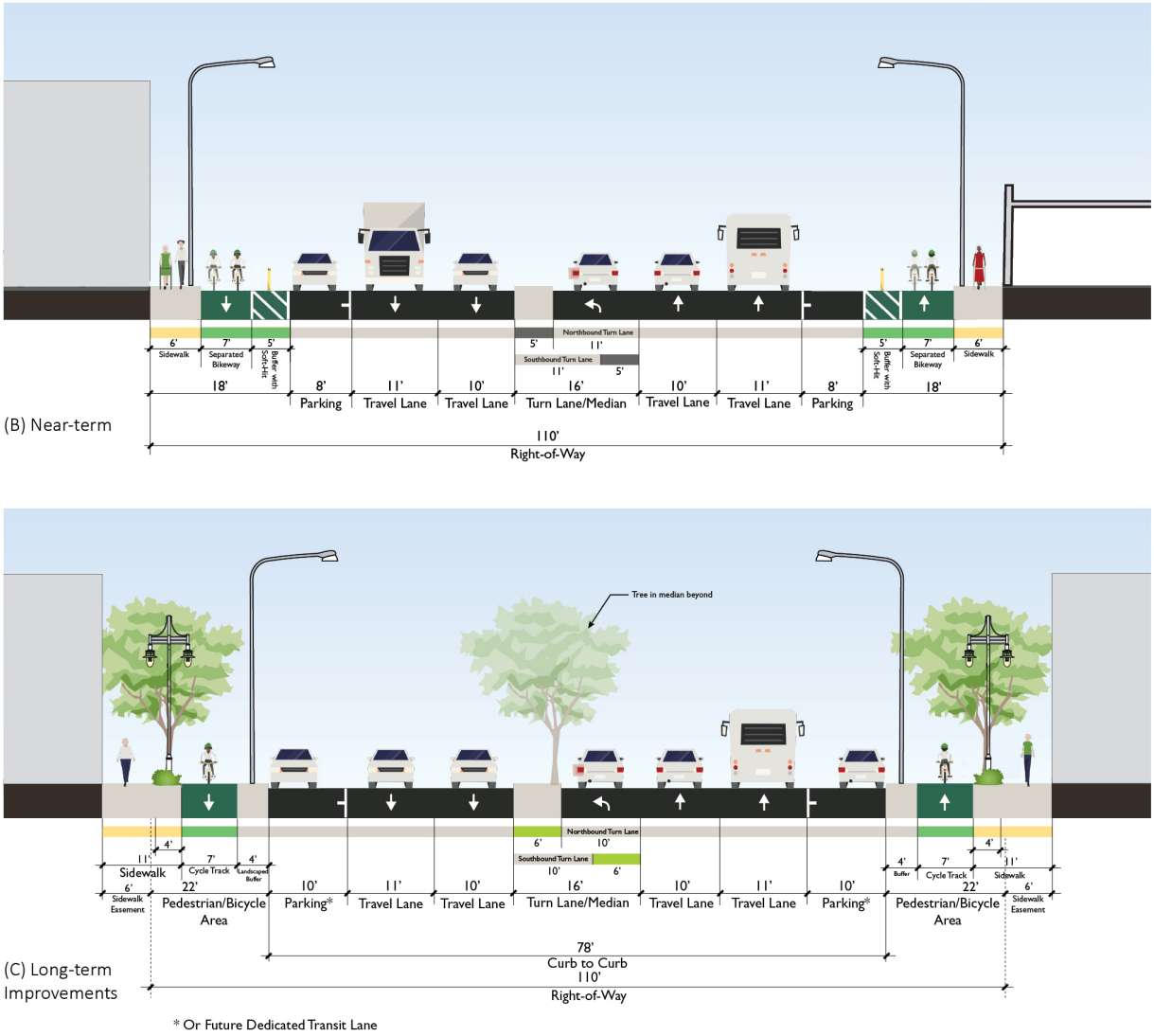
Figures E:9: North of Shields Near-term and Long-term improvements (facing North)

Table E.1 provides an overview of all near and long-term improvements recommended for this segment of the Blackstone/Abby Corridor.

Mode & Locations	Near Term Improvements	Long Term Improvements
Segment: Dakota Avenue to Shields Avenue (Shields/Manchester Activity Center)		
Overall Corridor ROW	• Reduce posted speed to 30 mph • Construct per near-term concept	• Reduce posted speed to 30 mph (if not already reduced under Near-term Improvements) • Construct per long-term concept and results of Pilot Project and additional studies. *Option 1:* without on-street parking and option for Transit Only lane *Option 2:* with on-street parking and option for Transit Only lane
Bike	• Two-way separated bikeway with striped buffer and vertical delineators on west side and (for comparative testing) an additional separated bikeway on east side	• *Option 1:* Raised 16' two-way separated bikeway, or • *Option 2:* Raised 12' two-way separated bikeway • *Or, if preferred after further study:* two one-way separated bikeways • Bicycle wayfinding signage (per MUTCD) • Provide bicycle parking
Pedestrian	• Encourage private property owners to screen adjacent parking lots and plant trees in adjacent landscape buffers	• 10'-wide sidewalks with 6' tree-lined landscape buffer • Pedestrian wayfinding signage along pedestrian routes between BRT stops and key civic and other destinations
Streetscape	• Add banners to existing roadway fixtures	• Segment-themed streetscape design to enhance image of regional retail center (new palm and shade trees, pedestrian-scale lighting) • *Option 1 (no parking):* 20'-wide (10' next to turn-lane) median with trees • *Option 2 (with parking/flex lane):* 16'-wide (6' next to turn-lane) median with trees • *Option 1 (no parking):* 20'-wide (10' next to turn-lane) median with trees • *Option 2 (with parking/flex lane):* 16'-wide (6' next to turn-lane) median with trees
Intersections	• Use paint & plastic improvements to enhance crosswalks and outline painted curb extensions and median refuges • Develop enhancements for Dakota and Shields Ave intersections to support transition of bicycles between one and two-way separated bikeways and bicycle facilities on Dakota and Shields	• Study adding new signal at Blackstone/Garland • Improve Dakota and Shields Ave intersections to transition bicycle traffic • Improve signal phasing to support pedestrians, bicycles, and transit vehicles
Transit	n/a	• *Option 2:* Includes potential conversion of 10' parking/flex lane to Transit Only lane (depending on outcome of Pilot Project)

Shields Avenue to Hedges Avenue

The envisioned long-term improvements include the introduction of separated bikeways on either side of the street, widened sidewalks, and widened landscape medians in locations where dedicated left-turns are eliminated or shortened. Space for these improvements is gained by reducing the number of travel lanes in each direction from three to two and by removing the parking lane on the west side of the street. In addition, the cross section includes 6-foot wide sidewalk easements on either side of the street. This easement is already required by the City's Development Code for new development along Blackstone Avenue for the purpose of widening sidewalks along the street.



Figures E.10: Shields to Hedges Near-term & Long-Term Sections (facing North)

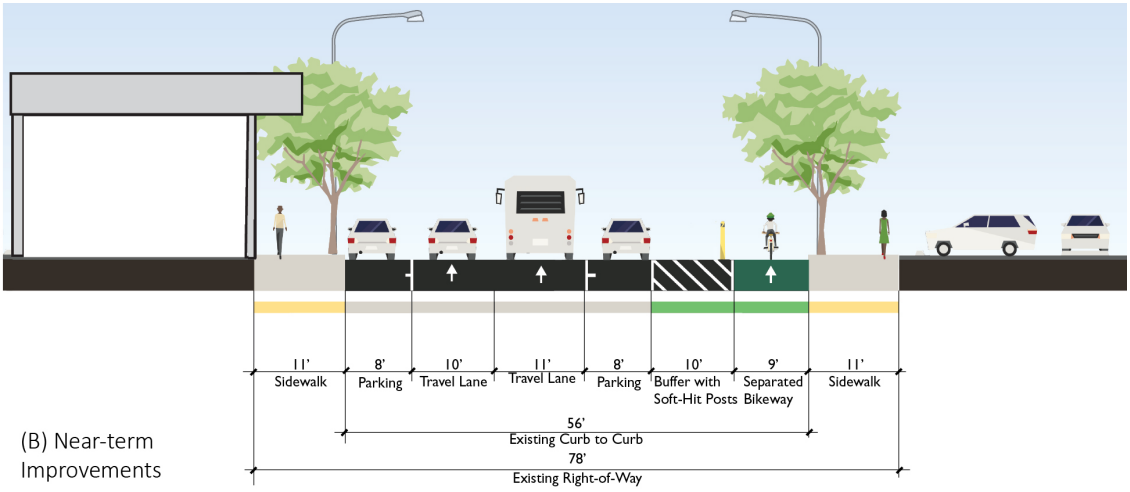
Table E.2 provides an overview of all near and long-term improvements recommended for this segment of the Blackstone/Abby Corridor.

Mode & Locations	Near Term	Long Term
Segment: Shields Avenue to Hedges Avenue (Shields/Manchester & Weldon/FCC Activity Centers)		
Sub-Segment #1: Shields to McKinley Avenue		
Overall Corridor ROW	• Reduce posted speed to 30 mph • Construct per near-term concept	• Reduce posted speed to 30 mph (if not already reduced under Near-term Improvements) • Construct per long-term concept and results of Pilot Project and additional studies.
Bike	• Parking-separated bikeways with striped buffer/vertical delineators	• Raised separated bikeways with 4' buffers on parking and sidewalk side • Bicycle wayfinding signage (per MUTCD) • Provide bicycle parking
Pedestrian	• Encourage private property owners to screen adjacent parking lots and plant trees in adjacent landscape buffers	• 11'-wide sidewalks (inclusive of 6' easement on private property (as required for new development) • Pedestrian-scale lighting and shade trees • Install signalized (signals/PHBs) crosswalks to reduce distances between crosswalks to an eighth of a mile
Streetscape	• Add banners to existing roadway fixtures to announce FCC Campus/ Activity Center/events • Reconstruct as sidewalk abandoned or extraneous driveways	• Create highly visible gateway feature at near Blackstone/Weldon intersection to identify major entry to FCC campus • Create pedestrian- and transit-oriented district by establishing segment-themed streetscape design (signature trees, light fixtures, wayfinding signage, furnishings, banners) • Where feasible, eliminate and shorten left turns off Blackstone to create wider medians • Add trees in new medians
Intersection Improvements	• Use paint & plastic improvements to enhance crosswalks and outline painted curb extensions and median refuges	• Study potential new signalized intersection at Blackstone/University Ave • Improve signal phasing to support pedestrians, bicycles, and transit vehicles
Transit	• Temporarily extend bus stop platform to travel lane or stripe pullout with bikeway going behind shelter (where feasible)	• Bus stop bulb-outs with bikeways behind, or • Convert 10' parking lane to transit-only lane (depending on outcome of Pilot Project)
Sub-Segment #2: McKinley to Hedges Avenue		
Overall Corridor ROW	• Reduce posted speed to 30 mph • Construct per near-term concept	• Reduce posted speed to 30 mph (if not already reduced under Near-term Improvements) • Construct per long-term concept and results of Pilot Project and additional studies.
Bike	• Parking-separated bikeways with striped buffer/vertical delineators	• Raised separated bikeways with 4' buffers on parking and sidewalk side • Bicycle wayfinding signage (per MUTCD) • Provide bicycle parking where pedestrian-oriented districts or nodes develop
Pedestrian	• Close sidewalk gaps • Improve existing sidewalk surfaces, and clearly mark sidewalk area where covered with asphalt • Encourage private property owners to screen adjacent parking lots and plant trees in adjacent landscape buffers • Reconstruct as sidewalk abandoned or extraneous driveways	• 11'-wide sidewalks (inclusive of 6' easement on private property (as required for new development) • Pedestrian-scale lighting and shade trees • Install signalized (full/signals/PHBs) crosswalks to reduce distances between crosswalks to an eighth of a mile • Wayfinding signage should be considered where pedestrian-oriented districts or nodes develop and along pedestrian routes between BRT stops and key civic and other destinations

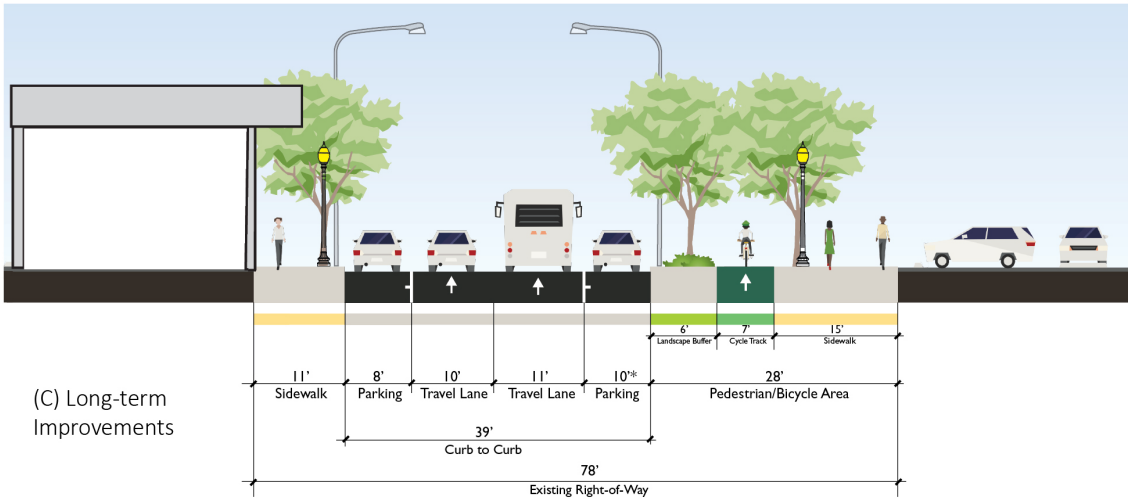
Mode & Locations	Near Term	Long Term
Streetscape	• Use banners to announce Blackstone Avenue and events	• Where feasible, eliminate and shorten left turns off Blackstone to create wider medians • Add trees in new medians
Intersection Improvements	• Use paint & plastic improvements to enhance crosswalks and outline painted curb extensions and median refuges	• Improve signal phasing to support pedestrians, bicycles, and transit vehicles • Explore feasibility of reconfiguring merge of Blackstone/Abby into intersection or two-lane roundabout (also see Hedges to Highway 180 below)
Transit	• Temporarily extend bus stop platform to travel lane or stripe pullout with bikeway going behind shelter (where feasible)	• Bus stop bulb-outs with bikeways behind, or • Convert 10' parking lane to transit-only lane (depending on outcome of Pilot Project)

Hedges Avenue to Highway 180

The envisioned long-term improvements include the introduction of a separated bikeway on both streets, pedestrian-scale lighting, on-street parking on both sides, and widened sidewalks. Space for these improvements is gained by reducing the number of travel lanes in each direction from three to two travel lanes and by narrowing the existing wide lanes to 10' and 11' respectively.

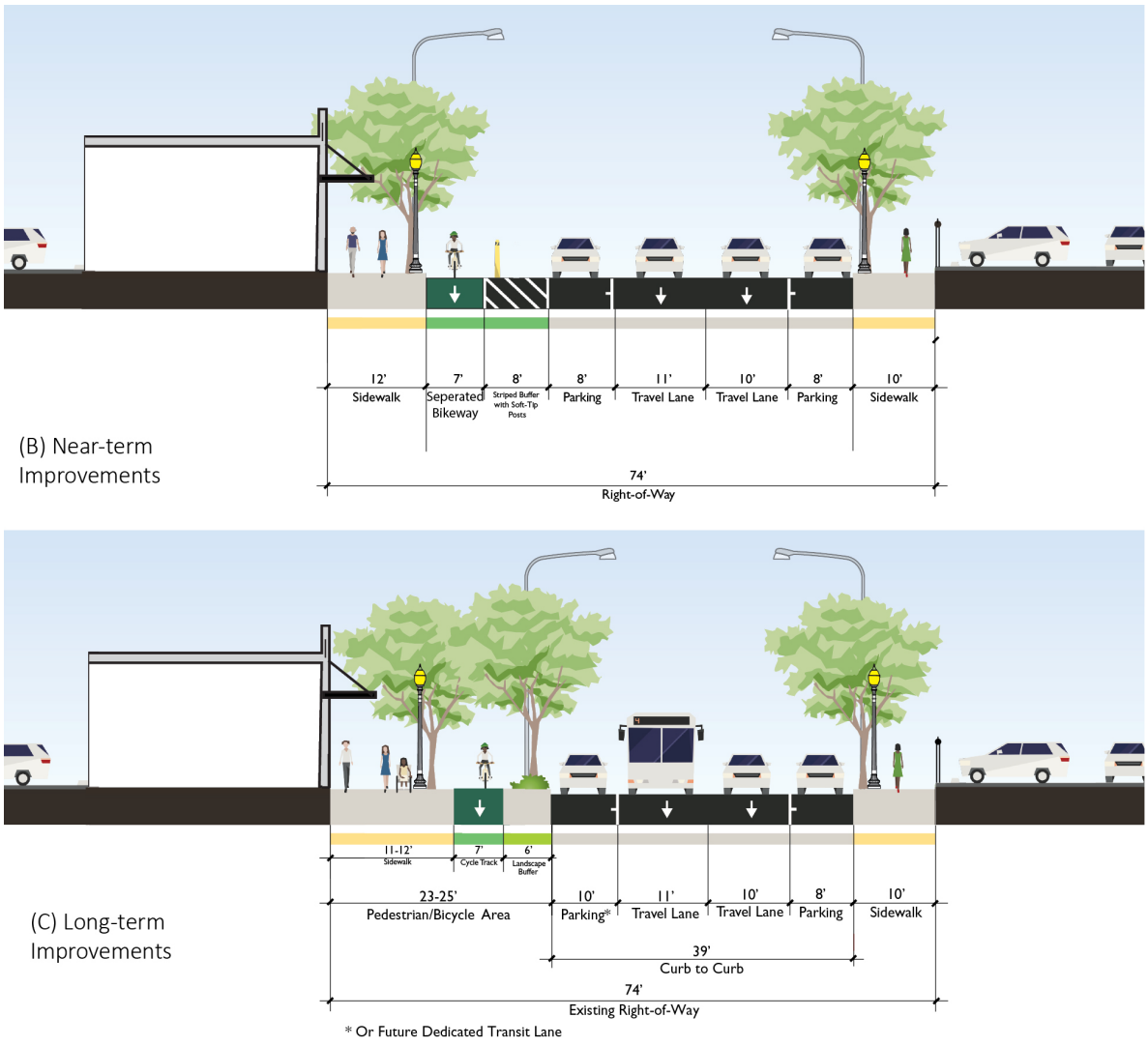


(B) Near-term Improvements



(C) Long-term Improvements

Figures E.11: Hedges Ave to Highway 180 – Abby Sections (facing North)



Figures E.12: Hedges Ave to Highway 180 – Blackstone Sections (facing North)

Table E.3 provides an overview of all near and long-term improvements recommended for this segment of the Blackstone Avenue and Abby Street sub-segments of the couplet.

Mode & Locations	Near Term Improvements	Long Term Improvements
Segment: Hedges Ave to Highway 180 (Olive/Tower Gateway Activity Center)		
Sub-Segment #1: Abby Street		
Overall Corridor ROW	• Reduce posted speed to 30 mph • Construct per near-term concept	• Reduce posted speed to 30 mph (if not already reduced under Near-term Improvements) • Construct per long-term concept and results of Pilot Project and additional studies.
Bike	• Parking-separated bikeways with striped buffer/vertical delineators on east side of street	• Raised separated bikeways with buffers on parking and sidewalk side

Mode & Locations	Near Term Improvements	Long Term Improvements
Pedestrian	• Improve existing sidewalk surfaces • Work with property owners to reduce encroachment on sidewalks • Reconstruct as sidewalk abandoned or extraneous driveways	• 11'- to 15'-wide sidewalks • Pedestrian-scale lighting and shade trees • Install enhanced (RRFBs/PHBs) crosswalks to reduce distances between crosswalks to an eighth of a mile
Streetscape	• Use banners to announce Activity Center and events • Plant supplemental trees along sidewalks	• Create pedestrian- and transit-oriented district by establishing segment-themed streetscape design (signature trees, light fixtures, furnishings, banners) • Explore gateway at merge of Blackstone/Abby
Intersections	• Use paint & plastic improvements to enhance crosswalks and outline painted curb extensions and median refuges	• Install signalized PHBs or RRFBs at select crosswalks between existing signalized intersections • Improve signal phasing to support pedestrians, bicycles, and transit vehicles • Explore feasibility of reconfiguring merge of Blackstone/Abby into intersection or two-lane roundabout
Transit	• Temporarily extend bus stop platform to travel lane or stripe pullout with bikeway going behind shelter (where feasible)	• Bus stop bulb-outs with bikeways behind, or • Convert 10' parking lane to transit-only lane (depending on outcome of Pilot Project)
Sub-Segment #2: Blackstone Avenue		
Overall Corridor ROW	• Reduce posted speed to 30 mph • Construct per near-term concept	• Reduce posted speed to 30 mph (if not already reduced under Near-term Improvements) • Construct per long-term concept and results of Pilot Project and additional studies.
Bike	• Parking-separated bikeways with striped buffer/vertical delineators on west side of street	• Raised separated bikeways with buffers on parking and sidewalk side • Bicycle wayfinding signage (per MUTCD) • Provide bicycle parking
Pedestrian	• Improve existing sidewalk surfaces • Work with property owners to reduce encroachment on sidewalks • Reconstruct as sidewalk abandoned or extraneous driveways	• 10' to 15' wide sidewalks • Supplemental pedestrian-scale lighting and shade trees • Install enhanced (RRFBs/PHBs) crosswalks to reduce distances between crosswalks to an eighth of a mile
Streetscape	• Use banners to announce Activity Center and events • Plant supplemental trees along sidewalks	• Create pedestrian- and transit-oriented district by establishing segment-themed streetscape design (signature trees, light fixtures, wayfinding signage, furnishings, banners)
Intersections	• Use paint & plastic improvements to enhance crosswalks and outline painted curb extensions and median refuges	• Improve signal phasing to support pedestrians, bicycles, and transit vehicles • Explore feasibility of reconfiguring merge of Blackstone/Abby into intersection or two-lane roundabout
Transit	• Temporarily extend bus stop platform to travel lane or stripe pullout with bikeway going behind shelter (where feasible)	• Bus stop bulb-outs with bikeways behind, or • Convert 10' parking lane to transit-only lane (depending on outcome of Pilot Project)

Implementation and Funding Strategy

The Southern Blackstone Smart Mobility Strategy provides the foundation for a series of future steps to implement the community's vison for changes along the Blackstone Avenue/Abby Street Corridor.

The concept designs presented in this Strategy have been created to be both clear in their incorporation of pedestrian, bicycle, and streetscape improvements and flexible in their dimensional composition, so that findings from future further evaluation of the concepts for near- and long-term improvements can be addressed by making refinements to rather than drastically altering the community's vision.

A key aspect of the proposed implementation strategy is to implement a low-cost version (Pilot Project) of the envisioned permanent (long-term) improvements in the near future (3 to 5 years) and to test and evaluate these near-term improvements for their viability and functionality prior to committing significant capital funds for construction of the long-term improvements. This approach results in an implementation process that:

- Is sensitive to the community's desire to see improvements to the Blackstone Avenue/Abby Street Corridor in the near-term;
- Is flexible because it allows for conceptual refinements and modifications informed by findings from testing and evaluating the envisioned improvements through Pilot Project(s);
- Is flexible with respect to funding and phasing because it allows for the incremental implementation of long-term improvements while near-term improvements, if implemented along the length of the Corridor, provide a baseline-level of the desired improvements.

The Pilot Project also serves the purpose of testing whether the Corridor meets the City's multi-modal performance goals for transit corridors that serve activity centers even if one travel lane in each direction is removed. It is recommended that this assumption be tested and evaluated through a comprehensive assessment of a range of multi-modal performance criteria, including a detailed traffic study. It is recommended that the Pilot Project be based on the Near-term Improvements outlined in this Strategy. The assessment can serve to determine:

1. The viability and functionality of the recommended Near-term Improvements;
2. The need for potential refinements or modifications to the design concepts for Near-term Improvements;
3. The potential for expanding the construction of Near-Term Improvements along other segments of the Corridor;
4. The viability of moving forward with refining the design of the envisioned Long-term Improvements, which are based on the same key assumptions as the Near-term Improvements.

In order to test the functionality and viability of a separated bikeway on Blackstone Avenue, which is not currently included in the City's network of bicycle facilities, it is recommended to locate the Pilot Project in an area of the Corridor that ties into existing east-west bicycle connections and where the new bikeway can serve bicycle trips to destinations along Blackstone Avenue. These conditions are met by the Corridor segment between Shields and McKinley Avenues, both of which have existing bicycle lanes. At either end, the segment is anchored by a major land use that has the potential to generate bicycle trips. The Manchester Center, located at the northern end of the segment, is a major destination for potential bicycle trips and the Fresno City College (FCC) campus, located at the southern end, is a potential major generator for bicycle trips up and down the Pilot Project area.

The table below provides a summary of implementation steps involved in the further planning, design, and funding of the envisioned near- and long-term improvements:

Table E.4: Implementation Steps

Step 1	Finalize extent of segment where to test Near-Term Improvements as Pilot Project (Recommended: Shields Avenue to McKinley Avenue).
Step 2	Identify detailed multi-modal performance criteria for comprehensive evaluation of near-term improvements with respect to all modes and other evaluation criteria during Pilot Project phase.
Step 3	Identify funding source(s) for detailed design, environmental clearance, construction, and evaluation of Pilot Project. Prepare detailed design and construction documentation, conduct speed study to lower posted speed limit to 30 miles per hour (in one or two steps as discussed in Section 3.1).
Step 4	Construct Pilot Project between Shields and McKinley Avenues and conduct comprehensive evaluation of multi-modal performance criteria.
Step 5	Decide on future implementation steps based on outcomes of evaluation of Pilot Project(s): • Make refinements and potential modifications to design approach for Near-Term Improvements prior to continuation or expansion of improvements • Study potentially expansion of Near-Term Improvements to other segments or the entire Corridor • Make potential modifications to design approach for community's Long-Term Vision Improvements
Step 6	Identify funding source(s) for detailed design, environmental clearance, and construction of Corridor blocks or segments slated for implementation of Long-Term Improvements. Prepare detailed design and construction documentation (based on outcomes of Pilot Project and modifications based on Evaluation results).
Step 7	Prepare detailed design and construction documentation for Long-Term Improvements
Step 8	Construct blocks or segments of Long-Term Improvements

Level-of-Magnitude Construction Costs

The overview of level-of-magnitude construction costs reflected in ***Table E.5*** below serves the sole purpose of conveying a general sense of the magnitude of capital funds needed to construct the envisioned improvements and to inform the process of identifying suitable funding sources.

Table E.5 ***Level-of-Magnitude Costs for Near- and Long-Term Improvements***

Near term Improvements Shields Avenue to McKinley Avenue (Pilot Project)	
$2.8 million (including 25% contingency and soft costs*)	
Near term Improvements Corridor wide (Dakota Avenue to Highway 180)	
$3.3 million (including 25% contingency and soft costs*)	*Includes no new HAWK signals*
$5.0 million (including 25% contingency and soft costs*)	*Includes 5 locations for construction of new HAWK signals*

Long term Improvements for One Block and the Two Adjacent Intersections (NORTH of Hedges)
$2 million (including 35% contingency and soft costs*)
Long term Improvements for One Block and the Two Adjacent Intersections (Blackstone or Abby)
$1.3 million (including 35% contingency and soft costs*)
Long term Improvements Corridor wide (Dakota Avenue to Highway 180)
$53 million (including 35% contingency and soft costs*)

* *includes cost for Scoping (3%), CEQA (5%), Design (15%), and Construction & Engineering Administration (15%)*

Funding Strategy

Funding strategies to implement the concept design will require accessing a variety of revenue sources for further project design and engineering, construct a Pilot Project, and effect the ultimate improvements. Funding source availability will vary based on project phase, with already completed Pilot Project improvements potentially contributing to corridor revitalization activity that generates additional long-term funding and financing opportunities. The funding strategy will therefore require a committed near-term effort to securing grant and other funding for early improvements, as well as near-term implementation of funding and financing mechanisms that will generate longer-term funding for the ultimate improvements as the corridor revitalizes.

With consideration to the various funding approaches and sources described above, this section offers near-term recommendations to secure funding for initial phases and to establish longer term funding mechanisms that may help to fund the ultimate corridor improvements:

1. **Pursue Grant Funding.** With a primary focus on Fresno COG administered programs, the City should aggressively pursue all viable sources of grant funding to secure funds for additional planning efforts as well as capital improvements.
2. **Engage with industry representatives to evaluate the potential for industry-based public-private partnership.** The City should immediately engage with private sector active transportation and e-scooter providers to determine if private sector participation in funding active transportation improvements in exchange for regulatory relief or market access is a viable approach.
3. **Evaluate Feasibility of EIFD/CRIA formation.** In the near term, the City should conduct additional analysis to evaluate the property tax increment revenue generation potential of an EIFD or CRIA district as well as the overall feasibility of district formation. The revenue-generating potential of these mechanisms is a longer-term prospect, as it may take many years for property tax revenue growth to reach significant threshold levels. The City should, however, consider and evaluate if implementation of these tax increment mechanisms should occur in the nearer term, such that the district can capture property value increases associated with current and near-term revitalization activities (e.g., Manchester Center).
4. **Consider PBID or Multifamily Improvement District Formation.** Working with existing community development and outreach infrastructure and organizations, the City should evaluate the viability and likelihood of successful implementation of a PBID, Multifamily Improvement District, or other similar community benefit district. These types of districts typically fund services and community revitalization efforts that may stimulate additional investment and associated development-based revenues, but funds may also be used to fund capital improvements. Outreach to the community should explore stakeholder preferences with regard to how assessment revenues are programmed.

5. **Develop a comprehensive strategy to revitalizing the Blackstone Avenue Corridor.** Corridor improvements and increased private investment activity and revitalization are mutually beneficial and have the potential to generate a self-reinforcing cycle of investment and public improvements. New market rate development activity can generate revenues to support Blackstone Corridor improvements, and investments in the public realm create a more attractive development environment. With this synergy in mind, the City should establish a comprehensive economic development, community revitalization, and land use planning strategy for the corridor that identifies additional approaches, mechanisms, and partnerships to catalyze private investment and urban renewal.

These recommendations reflect near-term actions that may assist the City to implement the Southern Blackstone Smart Mobility Project. Over the longer term, the viability of additional funding approaches (such as development impact fees or value capture mechanism) may improve as revitalization activity takes hold. The City should continually reevaluate viable funding mechanisms and catalytic approaches to funding the envisioned improvements

1. Introduction

The Southern Blackstone Smart Mobility Strategy (Strategy) identifies the community's near and long-term vision for future multimodal transportation and streetscape improvements along the Blackstone Avenue/Abby Street Corridor (also referred to as the Blackstone/Abby Corridor or Corridor) to improve safety and comfort conditions for pedestrians and bicyclists, people accessing and riding transit as well as drivers. The improvements discussed in this Strategy are also intended to support the City's goals for the economic revitalization and redevelopment of three activity centers along the Blackstone Avenue/Abby Street Corridor between Dakota Avenue and State Route 180 (commonly referred to as Highway 180).

North Blackstone Avenue stretches from the northern edge of Downtown and runs due north for about nine miles to the northern suburban neighborhoods of Fresno. The section of the Corridor within the study area of the Southern Blackstone Smart Mobility Strategy comprises the sub-section of North Blackstone Avenue located between Dakota Avenue in the north and Highway 180 in the south and includes the one-way sections of Blackstone Avenue and Abby Street between Hedges Avenue and Highway 180.

This draft Strategy documents the community-driven process and efforts invested by members of the local community, the City of Fresno and its Project Partners, Fresno Metro Ministry and the Local Government Commission (LGC), the City's Consultant Team, and numerous local stakeholders in developing a Complete Streets Framework and envisioning design concepts and concept options for near and long-term improvements that aim to increase the effective range of public transit and to serve the needs of all modes[4] and users, particularly bicyclists and pedestrians. The Strategy also includes a locally feasible implementation phasing and funding strategy.

The Strategy document is organized into four sections:

1. Introduction: Provides background information about the project's purpose and draft goals, and a summary of the report structure.
2. Outreach & Community Engagement: Provides a summary of the outreach effort and public engagement activities conducted as part of the project.
3. Complete Street Framework and Design Concepts: Describes recommended strategies and design concepts for corridor-wide and segment based multi-modal and streetscape improvements, including conceptual near-term and long-term street cross-sections.
4. Implementation and Funding Strategy: Outlines the approach to implementing the envisioned near-term and long-term concepts, level-of-magnitude construction costs, and possible implementation funding sources and strategies.

The Southern Blackstone Smart Mobility Strategy project is funded primarily through the Sustainable Transportation Planning grant from the State of California Department of Transportation (Caltrans).

[4] A (travel) mode represents a means of transportation, such as driving, taking transit, biking, or walking.

1.1 Corridor History

North Blackstone Avenue stretches from the northern edge of Downtown and runs due north for about nine miles to the northern suburban neighborhoods of Fresno. Of this stretch, the study area encompasses the sub-section of between Dakota Avenue in the north and Highway 180 in the south.

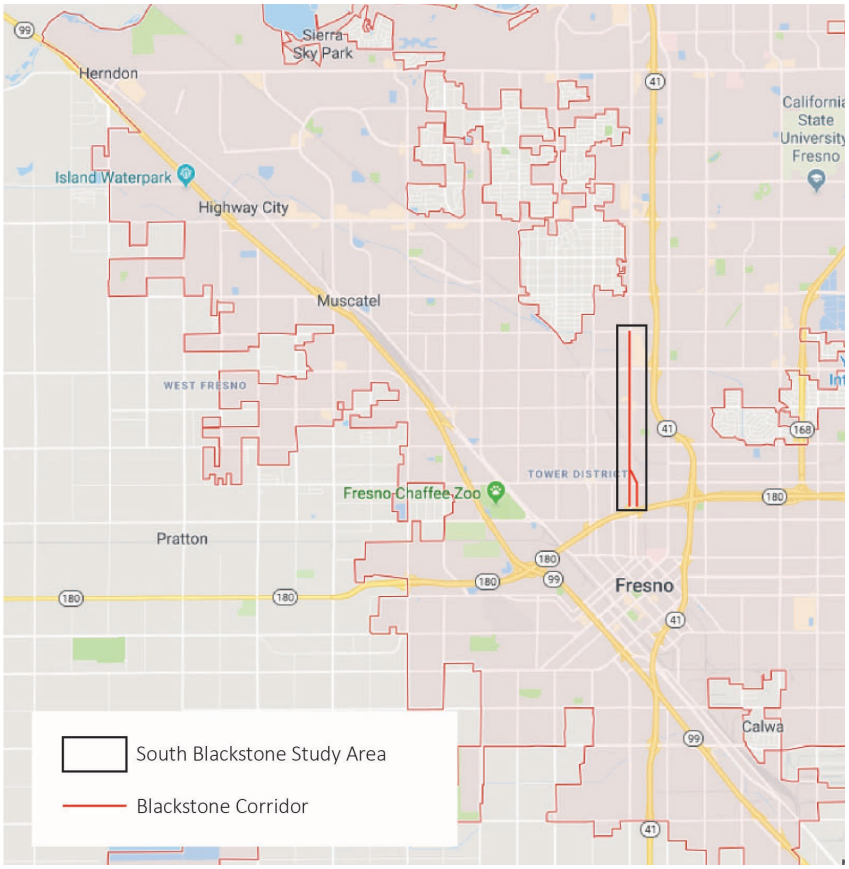


Figure 1.1: Project Location (Source: Base map – Google Maps)

Blackstone Avenue initially provided access to a residential enclave built for wealthy attorneys in the late 1800s, which is why it was named after the famous English jurist Sir William Blackstone. Early in the 20th century, when streetcars fostered the development of commercial uses and middle-class neighborhoods in locations that stretched further and further north, the Corridor became an important link to places north of Fresno, such as Madera County and Yosemite. At that time Blackstone Avenue became part of State Route 41. As a consequence, the street was widened to meet the dimensional standards for highways of the time. After World War II commercial development along the Corridor thrived and included the large Manchester Center, Fresno's first major, suburban shopping center and a multitude of smaller strip mall developments. The first McDonald's franchised by Ray Croc located on Blackstone in 1955.

With construction of today's State Route 41 freeway one quarter mile to the east of Blackstone Avenue, the Corridor was removed from the state route system and is now owned and operated by the City of Fresno.

1.2 Existing Conditions Summary

Land Use Context

The larger Blackstone Avenue corridor is currently the most prominent major street connecting the Downtown area to the northern areas of Fresno, including the major commercial centers concentrated between Herndon and Nees Avenues. As such, the land use policy framework of the Fresno General Plan (also see Section 1.3) emphasizes rehabilitation, intensification, and reuse of vacant and underutilized land along the length of Blackstone Avenue and Abby Street in the study area. For the area south of Shields Avenue, Fresno's Development Code designates the vast majority of properties fronting onto

Blackstone Avenue and Abby Street as Neighborhood Mixed-Use (NMX). The area north of Shields Avenue is designated as a mix of Regional Mixed-Use (RMX) and Commercial Regional (CR). The development and design standards for the primary zoning type, Neighborhood Mixed-Use (NMX), allow and encourage a mix of housing, retail, office, and active public spaces in a pedestrian-oriented environment. The policy framework's intention is to transform the formerly auto-oriented Corridor into transit-oriented street with a vibrant, diverse, and attractive mix of pedestrian-oriented retail, office, and residential uses in order to achieve an active social environment within a revitalized streetscape. A critical part of the Corridor's transformation from an auto-oriented to a transit-oriented street was the implementation of the first phase BRT route (Fax 'Q') in the City of Fresno, which went into operation in 2018.

Based on the General Plan's policy framework, the request for proposals (RFP) for the Southern Blackstone Avenue Smart Mobility Strategy identified the following three activity centers along the Blackstone/Abby Corridor:

- *Shields/Manchester Activity Center* - includes the Manchester Center Mall and extends from Dakota Avenue to Princeton Avenue.
- *Weldon/Fresno City College Activity Center* – includes Radcliff Stadium, and Fresno City College, covering the corridor from Princeton Avenue to Hedges Avenue.
- *Olive/Tower Gateway Activity Center* – includes the One-way couplet, the Susan B Anthony elementary school, and ends at the Highway 180 Freeway overpass.

These activity centers acknowledge that different areas of the Corridor provide varying opportunities for future change based on the mix of existing and envisioned future land uses, average parcel size and depth, access conditions, and other land use and transportation characteristics.

Existing land uses along the 2.5-mile long Corridor in the study area include nearly 1,000 small and mid-size businesses, vacant sites, and many buildings in need of renovation. A majority of the legacy retail and commercial uses are auto-oriented and include car sales, service, and repair establishments. Currently known proposed development projects along the Corridor include affordable housing and mixed-use infill development projects in several locations (see Figure 3.11). Several public uses depend on the Blackstone/Abby Corridor for access, including schools, parks, and institutions. This includes the *Fresno City College* campus, the *JE Young Academic Center*, and the *Susan B. Anthony* elementary school, all of which are located directly adjacent to the Corridor. The *Design Science* early high school, *Fort Miller* middle school, *Heaton* elementary school and *Lafayette Park* being located just a short distance off the Corridor.

Multi-modal Conditions

The multimodal conditions along the Blackstone/Abby Corridor were largely shaped by its past function as a state highway during a time period and under a street design paradigm that favored allocating right-of-way space to ensure the flow of automobile traffic and treated the needs of pedestrians and bicyclists as an afterthought.

Pedestrian and Bicycle Conditions

The allocation of most of the available public right-of-way to vehicular traffic (see ***Figure 1.2***) has resulted in poor bicycling and walking conditions along the majority of the Corridor. The list below summarizes

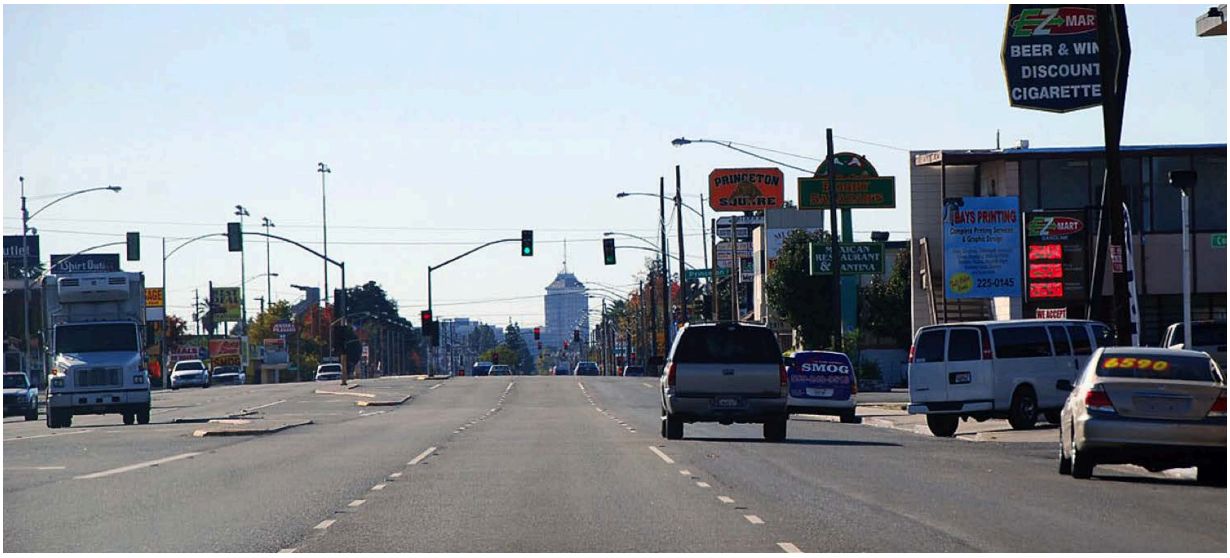


Figure 1.2: Existing Conditions along Southern Blackstone Avenue

key characteristics of the existing conditions for people walking and bicycling along the Blackstone/Abby Corridor:

- With an average width of 6 feet, the majority of sidewalks north of Olive Avenue are too narrow and too exposed to fast-moving vehicular traffic to be comfortable and inviting to pedestrian travel.
- Gaps in sidewalk continuity north and south of Hedges Avenue significantly impede pedestrian travel from the couplet portion of the Corridor to Blackstone Avenue.
- A gap in sidewalk continuity and lack of pedestrian gates on the east-side of Blackstone Avenue at the railroad crossing creates a pedestrian safety hazard.
- Sidewalk areas safe for pedestrian travel are poorly defined throughout the auto-oriented business frontages between McKinley and Olive Avenue.
- With few exceptions in the couplet area, the majority of the Corridor lacks any streetscape elements that promote pedestrian comfort and a sense of place. In particular, the lack of street trees, pedestrian-scale lighting, and other amenities (e.g. seating, trash receptacles, and wayfinding signage).
- The distances between signalized crosswalks are excessive and inconvenient (over one-quarter mile in most locations), and potentially the reason for frequently observed pedestrians walking across the street mid-block and at unsignalized locations .
- Bicyclists have to share the outermost travel lane with fast moving traffic.
- The Corridor lacks bicycle amenities, such as bicycle parking or wayfinding.
- Based on Fresno's Active Transportation Plan, the Corridor currently has a high Bicycle Level of Stress rating, with conditions acceptable only to "strong and fearless" riders[5].

[5] The ATP defines the Bicycle Level of Traffic Stress as follows: Bicycle level of traffic stress (LTS) criteria span from 1 to 4, with 1 being the least stressful and 4 being the most stressful: LTS 1: Most children and older adult riders can tolerate this level of stress and feel safe and comfortable. LTS 1 roadways typically require more separation from traffic. LTS 2: This is the highest level of stress that the mainstream adult population will tolerate while still feeling safe. LTS 3: Bicyclists who are considered "enthused and confident" but still prefer having their own dedicated space for riding will tolerate this level of stress and feel safe while bicycling. LTS 4: For bicyclists, this is tolerated only by those characterized as "strong and fearless," which comprises a small percentage of the

- Traffic speeds are high and the leading cause for the majority of accidents.
- Cars traveling at the posted speed of 40 mph are statistically associated with a rate of injuries and casualties that is significantly higher compared to the rates associated with lower speeds (see *Figure 3.6* on page 31).
- Most curb ramps are not directional and absent in a number of locations (e.g. where alleys intersect the Corridor). Wide and frequent driveways create sidewalk cross slopes that impede travel by wheel chair.
- Based on the current conditions, the Corridor is does not support use by bicyclists and pedestrians of all ages and abilities.
- The above conditions reduce the incentives for residents in nearby neighborhoods, Fresno City College, and customers of stores to utilize the new Fax' Q service and other local transit routes to businesses and destinations along the Blackstone Avenue Corridor.

The conditions listed above notwithstanding, bicycle and pedestrian counts conducted for this Study (in May 2018), indicate that a significant number of people choose to or depend on traveling the Corridor by bicycle and on foot. Improvements to the safety and comfort of bicyclists and pedestrians would be expected to provide better service to the existing pedestrians and bicyclists, as well as attract additional trips through a change in the mode of travel, particularly for very short trips. In addition, it is expected that improvements to pedestrian facilities would support travel by transit, since walking to and from bus stops at the origin and destination end of travel are key consideration in trips made by transit.

Transit Conditions

Since early 2018, the length of Blackstone Avenue/Abby Street is serviced by the City's first Bus Rapid Transit (BRT) Route 1, also referred to as the "Q", which provides bus service at 10-minute headways at peak hour during weekdays and 15-minute headways on weekends. There are a total of seven BRT stops along the Blackstone/Abby Corridor, including the Manchester Transit Center, located on Blackstone Avenue at the Manchester Mall north of Shields Avenue. Some stretches of Blackstone Avenue also include local bus services. Several of the BRT stops are located where stops-adjacent sidewalks are narrow. The already described challenging conditions for persons walking along the Corridor, negatively impact access to transit for current and prospective bus riders. Improvements to these conditions would be expected to provide significant benefits also to transit riders accessing bus stops on foot, with the potential co-benefit of attracting additional ridership to the BRT.

The presence of BRT service along Blackstone Avenue presents both an opportunity and a challenge. The opportunity is that implementation of further multimodal improvements and the mid and long-term intensification of land uses has the potential to increase ridership of the Q and may warrant further service enhancements. The challenge is that if the number of through lanes is reduced along Blackstone Avenue, the resulting increases in intersection delay could also affect travel times for BRT buses.

Vehicle Traffic Conditions

The Blackstone Avenue/Abby Street Corridor is an important north-south route for automobiles and transit. It is also a designated truck route. The posted speed limit for both streets is 40 mph. At the southern end of the project area, Blackstone Avenue and Abby Street both connect to State Route 180

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population. These roadways have high speed limits, multiple travel lanes, limited or non-existent bike lanes and signage, and large distances to cross at intersections.

via loop ramps. Three of the Corridor's major east-west cross streets – Olive, McKinley and Shields Avenues – connect to State Route 99 to the west and two – McKinley and Shields Avenues – connect to State Route 41 to the east. South of Hedges Avenue, Blackstone Avenue and Abby Street function as a one-way couplet, with traffic on Blackstone Avenue traveling in the southbound direction and northbound traffic traveling on Abby Street.

A substantial number of accidents (53) were reported along the corridor for the period from 2013 to 2017. Of the accident causes, unsafe speeds, improper turns, and auto right-of-way (yielding) issues stand out as primary causes of the types of accidents. The roadway segments between Dakota and Shields Avenues (along the Manchester Center) and just south of the *Burlington Northern Santa Fe* (BNSF) railroad crossing have a relatively higher number of accidents than other locations along the Blackstone Avenue corridor.

The current volumes of traffic along the Blackstone Avenue corridor and parallel north-south streets operate below capacity considering existing (2018) Average Daily Traffic (ADT) volumes. The total excess capacity along the Corridor and parallel north-south streets is 87,000 vehicles per day considering existing traffic volumes. The projected levels of traffic in the Year 2040 will yield an excess capacity of 61,300 vehicles per day considering Blackstone Avenue's current roadway configuration. The roadway segments evaluated along the Corridor (Dakota Avenue to Highway 180) are projected to operate at acceptable levels of service even if one (1) travel lane were to be removed in order to provide space for improvements that increase pedestrian and bicycle safety and comfort. An exception to this finding is the roadway segment between Clinton Avenue and McKinley Avenue, which under the same assumptions achieves acceptable levels of service through the year 2035. It should also be noted that Heavy turn volumes at key intersections (Shields, Clinton, and McKinley Avenues) need to be accommodated in any redesign of the Corridor.

An in-depth discussion of the feasibility of reducing the number of travel lanes by one lane in each direction and further details about existing traffic, pedestrian, and bicycle volumes along the Corridor can be found under ***Section 3.3***.

Planned Transportation Improvements

Following is an overview of currently planned transportation improvements within the study area:

- Pedestrian Countdown Equipment and Accessible Pedestrian Signals along the BRT Route (ATP funded).
- Midtown Trail Project – This project includes a proposed trail along the Herndon Canal the will connect to a 7.1-mile segment from Blackstone and Shields to the Clovis Old Town Trail. That leg of the project is also funded by ATP and runs on Shields from Blackstone to Clovis.
- New traffic signal, including signalized crosswalks, at the Floradora Avenue intersection.
- New traffic signal, including signalized crosswalks, at the Webster Avenue intersection.
- Undergrounding of overhead utilities between SR 180 and Clinton Avenue.

1.3 Planning and Policy Context

The Southern Blackstone Smart Mobility Strategy, its Complete Streets Framework, and the design concepts presented in this document are a direct outcome of and continued support for a range of state, regional, and local policies, goals, and objectives.

City of Fresno General Plan

The City's 2014 General Plan establishes guidance for the future planning in the City of Fresno through the year 2035 and beyond. Of critical relevance to the Southern Blackstone Smart Mobility Strategy and the concepts presented herein are the following objectives:

Complete Streets Concept Implementation: Provide transportation facilities based upon a Complete Streets concept that facilitates the balanced use of all viable travel modes (pedestrians, bicyclists, motor vehicle and transit users), meeting the transportation needs of all ages, income groups, and abilities and providing mobility for a variety of trip purposes, while also supporting other City goals. Implementation actions will include:

- Meeting the needs of all users within the street system as a whole; each individual street does not need to provide all modes of travel, but travel by all modes must be accommodated throughout the Planning Area;
- Continuing to adopt refined street cross-section standards as appropriate in response to needs identified;
- Considering the impact of streets on public health by addressing storm water runoff quality, air quality, and water conservation among other factors; and
- Adhering to the water efficient landscape standards adopted by the City for median and streetscape plantings and irrigation methods.

[Source: City of Fresno General Plan, Transportation Chapter, Objective MT-1g].

Street Redesign where Excess Capacity Exists. Evaluate opportunities to reduce right of way and/or redesign streets to support non-automobile travel modes along streets with excess roadway capacity where adjacent land use is not expected to change over the planning period.

[Source: City of Fresno General Plan, Transportation Chapter, Objective MT-2d].

Potential Acceptance of Level of Service F Conditions: Accept LOS F conditions in Activity Centers and Bus Rapid Transit Corridors only if provisions are made to improve the overall system and/or promote non-vehicular transportation and transit as part of a development project or a City-initiated project. In accepting LOS F conditions, the City Traffic Engineer may request limited analyses of operational issues at locations near Activity Centers and along Bus Rapid Transit Corridors, such as queuing or left-turn movements. *[Source: City of Fresno General Plan, Transportation Chapter, Objective MT-1-m].*

General Plan Goals related to Bicycling and Walking (Active Transportation): A significant number of goals included in the Fresno General Plan are related to bicycling and walking as well as the related concept of active transportation. They include the following:

- Goal 4: Emphasize achieving healthy air quality and reduced greenhouse gas emissions.

- Goal 9: Promote a City of healthy communities and improve quality of life in established neighborhoods.

  Emphasize supporting established neighborhoods in Fresno with safe, well maintained, and accessible streets, public utilities, education and job training, proximity to jobs, retail services, health care, affordable housing, youth

development opportunities, open space and parks, transportation options, and opportunities for home grown businesses.

- Goal 11: Emphasize and plan for all modes of travel on local and major streets in Fresno. Facilitate travel by walking, biking, transit, and motor vehicle with interconnected and linked neighborhoods, districts, major campuses and public facilities, shopping centers and other service centers, and regional transportation such as air, rail, bus and highways.

- Goal 12: Resolve existing public infrastructure and service deficiencies, make full use of existing infrastructure, and invest in improvements to increase competitiveness and promote economic growth.

  Emphasize the fair and necessary costs of maintaining sustainable water, sewer, streets, and other public infrastructure and service systems in rates, fees, financing and public investments to implement the General Plan. Adequately address accumulated deferred maintenance, aging infrastructure, risks to service continuity, desired standards of service to meet quality-of-life goals, and required infrastructure to support growth, economic competitiveness and business development.

- Goal 14: Provide a network of well-maintained parks, open spaces, athletic facilities, and walking and biking trails connecting the City's districts and neighborhoods to attract and retain a broad range of individuals, benefit the health of residents, and provide the level of public amenities required to encourage and support development of higher density urban living and transit use.

- Goal 16: Protect and improve public health and safety.

General Plan Policy Framework: The policy framework of the 2035 General Plan emphasizes rehabilitation, intensification, and reuse of vacant and underutilized land along the length of Blackstone Avenue and Abby Street. For the area south of Shields Avenue, Fresno's Development Code designates the vast majority of properties fronting onto Blackstone Avenue and Abby Street and within the remainder of the three Activity Centers as Neighborhood Mixed-Use (NMX). The area north of Shields Avenue is designated as a mix of Regional Mixed-Use (RMX) and Commercial Regional (CR).

The development and design standards for the primary zoning type, Neighborhood Mixed-Use (NMX), allow and encourage a mix of housing, retail, office, and active public spaces in a pedestrian-oriented environment. The policy framework's intention for districts zoned as Mixed-Use are to:

- Transform certain auto-oriented boulevards and corridors into vibrant, diverse, and attractive corridors that support a mix of pedestrian-oriented retail, office, and residential uses in order to achieve an active social environment within a revitalized streetscape.

- Reduce the need for driving to access shopping, services, and employment centers and thereby minimize air pollution from vehicle miles traveled.

- Improve access to a greater range of facilities and services for surrounding residential neighborhoods.

- Establish development and design standards for these centers and corridors that will create a unified, distinctive, and attractive urban character, with appropriate transitions to adjacent residential neighborhoods.

(Source: 2015 Citywide Development Code, Article 11)

Fresno Active Transportation Plan (ATP)

Fresno's Active Transportation Plan (ATP) was prepared to implement the General Plan's Active Transportation goals.

With respect to the Blackstone Avenue and Abby Street Corridor the ATP identifies Blackstone Avenue and Abby Street as streets on which only bicycle riders classified as "strong and fearless" (LTS4) on the scale used to identify Bicycle Level of Traffic Stress[6] as feeling safe riding a bike on either of the two streets. As a consequence, the ATP currently does not include plans for future bicycle facilities on Blackstone Avenue or Abby Street. Instead the plan currently recommends accommodating bicyclists on parallel facilities.

While Blackstone Avenue is identified in the ATP as presenting a challenging environment for pedestrians and bicyclists, the plan only identifies a limited number of improvements, such as the closing of sidewalk gaps.

Based on the strong preference for the incorporation of bicycle and pedestrian facilities into the vision for future improvements, the City may want to consider changing the current recommendations of the TAP during future updates of the ATP.

Regional Transportation Plan (RTP)

The Regional Transportation Plan describes the following as major components of its Sustainable Transportation Strategy (SCS): investment in public transit systems, managing transportation demand, making transportation system improvements, and continuing to expand and improve bike and pedestrian facilities.

Active Transportation: The purpose of the Strategy is to address the following Active Transportation goals included in the Regional Transportation Plan (RTP):

- Maximize bicycling and walking through their recognition and integration as valid and healthy transportation modes in transportation planning activities.

[6] The ATP defines the Bicycle Level of Traffic Stress as follows: Bicycle level of traffic stress (LTS) criteria span from 1 to 4, with 1 being the least stressful and 4 being the most stressful: LTS 1: Most children and older adult riders can tolerate this level of stress and feel safe and comfortable. LTS 1 roadways typically require more separation from traffic. LTS 2: This is the highest level of stress that the mainstream adult population will tolerate while still feeling safe. LTS 3: Bicyclists who are considered "enthused and confident" but still prefer having their own dedicated space for riding will tolerate this level of stress and feel safe while bicycling. LTS 4: For bicyclists, this is tolerated only by those characterized as "strong and fearless," which comprises a small percentage of the population. These roadways have high speed limits, multiple travel lanes, limited or non-existent bike lanes and signage, and large distances to cross at intersections.

- Safe, convenient, and continuous routes for bicyclists and pedestrians of all types which interface with and complement a multimodal transportation system.

- Improved bicycle and pedestrian safety through education, engineering and enforcement.

- Increased development of the regional bikeways system, related facilities, and pedestrian facilities by maximizing funding opportunities

Sustainable Communities Strategy: The Sustainable Communities Strategy section of the RTP describes the significant investment in public transit and facilities that encourage walking and bicycling as an important part of the *Revenue-Constrained Transportation Network* scenario, which was selected by Fresno COG as its SCS. Through the City's actions under this scenario, the investment has so far led to the completion of the BRT line along the Blackstone Avenue/Abby Street Corridor. The Southern Blackstone Smart Mobility Strategy represents the first step in also implementing investments that aim to make walking and bicycling more attractive options along the Corridor in particular in the context of it being simultaneously planned for more compact and mixed-use development within its activity centers.

Caltrans Smart Mobility Framework

In addition, the City's land use, transportation, and sustainability goals and objectives for the area addressed by the Southern Blackstone Smart Mobility Strategy and the content of the Strategy advance and incorporate all six principles of the Caltrans Smart Mobility Framework, including:

1. Location Efficiency: Integrate transportation and land use in order to achieve high levels of non-motorized travel and transit use, reduced vehicle trip making, and shorter average trip length while providing a high level of accessibility.
2. Reliable Mobility: Manage, reduce, and avoid congestion by emphasizing multi-modal options and network management through operational improvements and other strategies. Provide predictability and capacity increases focused on travel that supports economic productivity.
3. Health and Safety: Design, operate, and manage the transportation system to reduce serious injuries and fatalities, promote active living, and lessen exposure to pollution.
4. Environmental Stewardship: Protect and enhance the State's transportation system and its built and natural environment. Act to reduce the transportation system's emission of GHGs that contribute to global climate change.
5. Social Equity: Provide mobility for people who are economically, socially, or physically disadvantaged in order to support their full participation in society. Design and manage the transportation system in order to equitably distribute its benefits and burdens.
6. Robust Economy: Invest in transportation improvements—including operational improvements—that support the economic health of the state and local governments, the competitiveness of California's businesses, and the welfare of California residents.

(Source: Smart Mobility 2010: A Call to Action for the New Decade, Caltrans*)*

1.4 Smart Mobility Strategy Goals and Objectives

The existing perception of large thoroughfares or "big streets" is that they include multiple travel lanes in each direction designed for moving large number of cars through a particular area of a city. However, until recently it was routinely overlooked that such streets also need to and can serve as providing connections between people that are not predicated on the use of cars and as places that foster community appeal, innovation, enterprise, and health. In order for big streets, such as the Blackstone/Abby Corridor, to fulfill this promise, they need to be design or, in this case, re-designed and constructed to be comfortable and safe for all users. The Southern Blackstone Avenue Smart Mobility Strategy provides the City of Fresno with a community-driven vision and framework for implementing many of the state, regional, and City policies and goals discussed in the previous section. At the center of the Strategy is a Complete Streets based approach to redesigning the Blackstone/Abby Corridor.

What Are Complete Streets?

Complete Streets are streets for everyone. They are designed and operated to enable safe access for all users, including pedestrians, bicyclists, motorists and transit riders of all ages and abilities. Complete Streets make it easy to cross the street, walk to shops, and bicycle to work. They allow buses to run on time and make it safe for people to walk to and from train stations.

Source: Smart Growth America/National Complete Streets Coalition

The benefits provided by the Complete Streets approach to designing streets.

Complete Streets make economic sense. A balanced transportation system that includes complete streets can bolster economic growth and stability by providing accessible and efficient connections between residences, schools, parks, public transportation, offices, and retail destinations.

Complete Streets improve safety by reducing crashes through safety improvements. One study found that designing for pedestrian travel by installing raised medians and redesigning intersections and sidewalks reduced pedestrian risk by 28%.

Complete Streets encourage more walking and bicycling. Public health experts are encouraging walking and bicycling as a response to the obesity epidemic, and complete streets can help. One study found that 43 percent of people with safe places to walk within 10 minutes of home met recommended activity levels, while just 27% of those without safe places to walk were active enough.

Complete Streets can help ease transportation woes. Streets that provide travel choices can give people the option to avoid traffic jams and increase the overall capacity of the transportation network. Several smaller cities have adopted complete streets policies as one strategy to increase the overall capacity of their transportation network and reduce congestion.

Complete Streets help children. Streets that provide room for bicycling and walking help children get physical activity and gain independence. More children walk to school where there are sidewalks, and children who have and use safe walking and bicycling routes have a more positive view of their neighborhood. Safe Routes to School programs, gaining in popularity across the country, will benefit from complete streets policies that help turn all routes into safe routes.

Complete streets are good for air quality. Poor air quality in our urban areas is linked to increases in asthma and other illnesses. Yet if each resident of an American community of 100,000 replaced one car trip with one bike trip just once a month, it would cut carbon dioxide (CO_2) emissions by 3,764 tons of per year in the community. Complete streets allow this to happen more easily.

Source: *Smart Growth for America/National Complete Streets Coalition*

Based on the state, regional, and City policies discussed in the previous section, the Southern Blackstone Smart Mobility Strategy and its complete streets design approach were prepared to address the following objectives:

- Increase access and safety along the Corridor for all travel modes and users, including the elderly, disabled, low-income, students and youth.
- Address deficiencies in the existing street design that are incompatible with the planned land uses outlined in the General Plan and impact business opportunities and performance in the identified activity centers along the Corridor.
- Recommend multimodal access and safety improvements for pedestrians and bicyclists as well as transit riders.
- Recommend potential sidewalk and streetscape enhancements to support pedestrian comfort, access to transit, and access to businesses and services.
- Identify potential treatments that support the management of traffic speeds within activity centers along the corridor.
- Consider on-street and off-street parking in the context of recommended multimodal improvements.
- Identify opportunities for gateway improvements and wayfinding signage.
- Recommend locally feasible implementation and funding strategies for recommended multimodal improvements.

1.5 Senate Bill 743

According to information on the Caltrans website[7], SB 743 was signed in 2013, with the intent to balance the need for congestion management with statewide goals related to promoting infill development, the promotion of public health through active transportation, and the reduction of greenhouse gas emissions. When implemented, traffic congestion will no longer be considered a significant impact on the environment within California Environmental Quality Act (CEQA) transportation analysis.

For land use projects, the Office Planning Research has identified Vehicle Miles Traveled (VMT) per capita, VMT per employee, and net VMT as new metrics for transportation analysis. For transportation projects, lead agencies for roadway capacity projects have discretion, consistent with CEQA and planning requirements, to choose which metric to use to evaluate transportation impacts.[8]

The City of Fresno is currently exploring how to implement the use of VMT standards in CEQA by the required deadline of July 1, 2020. The implementation of using VMT in assessing the environmental impact of both future development along the Blackstone/Abby Corridor and of transportation projects will be beneficial to realizing the City's overall vision of revitalizing and improving Blackstone/Abby into a TOD corridor and street that advances the City's goals and objectives for active transportation and transit use in conjunction with implementation of TOD (as discussed in the sections above).

[7] Source: http://www.dot.ca.gov/hq/tpp/sb743.html
[8] Source: http://www.dot.ca.gov/hq/tpp/sb743.html

2. Community Engagement

2.1 Project Outreach

Community Engagement Approach and Process

City planning staff and the project team engaged residents and stakeholders in an intensive and highly participatory public process over the course of nine months to assess and document conditions for all travel modes (walking, bicycling, transit and driving) and users (youth, seniors, people with disabilities, residents, Spanish speakers, patrons and businesses). Together, they identified shared values and concerns, and explored and helped prioritize proposed enhancements for Blackstone Avenue.

Throughout the course of the project, 8,300 flyers were distributed (7,200 in English, 900 in Spanish, 200 in Hmong) for the various community meetings, design workshops and input sessions. Over 751 one-on-one conversations were conducted to connect with residents and stakeholders and make them aware of the project. Across 15 Blackstone area neighborhoods, over 1,700 residential and commercial doors were knocked on where flyers were dropped to invite residents to the project events. Approximately 1,400 reminder phone calls were made to encourage their attendance and participation. Project outreach staff also rode the Q bus rapid transit line and waited at bus stops along Blackstone Avenue to hand out flyers and invite transit users to events.

Three separate mailings were sent out by the City of Fresno to 768 unique residential and commercial addresses within the project area. The mailings w ere printed in English, Spanish and Hmong. The project

Figure 2.1: Outreach canvassing and conversations with community members and stakeholders.

was featured in three Fresno Metro Ministry E-News letters that reached nearly 2,000 unique email addresses each time. Ten social media posts were posted on the Better Blackstone Facebook page reaching 2,955 people. The City maintained a project home page with background information, project scope and schedule, and upcoming events, and publicized events and activities through social media outlets that include Twitter, Facebook, and Nextdoor. In addition, the project has been covered by local media outlets, including the Fresno Bee, and Central Valley Observer.

2.2 Community Engagement

Advisory Committee

Outreach Advisory Group – April, 2018 through October, 2018

Outreach and engagement kicked off with the formation of the Community Engagement Advisory Group (CEAG) of 24 stakeholders and residents in April 2018 to provide guidance and help maximize participation in the community-based planning effort. The group included representatives from: Blackstone neighborhoods within the project focus area, local businesses and churches, community based organizations and environmental justice groups.

Figure 2.2: April 2018 Outreach Advisory Group Meeting

Figure 2.3: Flyer advertising June 2018 Workshops

The group met monthly with the City and project team members to help plan and publicize community events, identify ways to reach and encourage participation from all members of the community, and review and interpret input received from events and meetings.

Multi-Day Charrette

A multi-day public design workshop anchored the community-based planning process. It occurred over the course of four days in June 2018 to shape development of the plan. The purpose was to work with residents and stakeholders to establish a shared vision and concepts for a multi-modal corridor that supports motorists and non-motorists alike and revitalization of adjacent properties.

Figures 2.4: Small Group Site Walks on Portions of Blackstone Avenue

Community events took place at Fresno City College in the Old Administration Building. They were advertised and conducted in English, with Spanish and Hmong translation services provided.

Events kicked off Saturday morning with a Walk and Design Workshop attended by approximately 75 participants first viewing a presentation on existing conditions and principles of Complete Streets. Project team members then led groups on walks to discuss conditions at four different locations on the corridor. Two of the groups traveled to locations on the new Q bus rapid transit line, experiencing conditions along the corridor as transit users and pedestrians.

After the walks the participants returned to Fresno City College, joining others for lunch, a presentation of initial ideas for transformation, small group discussions around table maps followed by report outs, and provision of feedback on poster boards with initial strategies for improvements.

In the days that followed, the project team processed community input and held briefings with City staff, and held stakeholder focus groups and impromptu meetings with residents, business and property owners, representatives of local advocacy groups and churches along the corridor. Team consultants concurrently conducted field checks and sketched potential improvements and design alternatives.

Approximately 114 people attended the closing community workshop the following Tuesday evening. Team consultants reviewed principles of Complete Streets, the input to date, and initial concepts for change developed following the opening walk and design workshop on Saturday. Participants again broke

Figure 2.5: Table map and poster board input activity during June 2018 workshops.

Figure 2.6: Participant report out at June 26 closing workshop

Figure 2.7: Table discussions during the August workshop

into small groups around table maps to discuss ideas for improvements and reported their findings to the audience.

Priorities that emerged from the events and activities included the need for wider sidewalks, safer bicycle facilities and crosswalks, and more shade on Blackstone Avenue. There was also general consensus that the team should explore options that include conversion of on-street parking and adjacent travel lane to accommodate wider sidewalks and installation of protected bicycle lanes.

City planning staff and project team members met with a number of stakeholder groups during the multiday workshop. These include: Blackstone property owners, real estate developers, City Councilmembers, State Center Community College District, Fresno City College, Susan B. Anthony and Heaton Elementary Schools, and Fresno Unified School District Parent University.

The team also met with stakeholder groups for briefings and feedback following the multi-day design workshop. The groups included were Fresno Department of Public Works, Fresno Police Department, Fresno Area Express (FAX), and the Bicycle and Pedestrian Advisory Committee (BPAC).

Public Workshop

In the months that followed, the consultant team studied and refined proposed improvements, conducted traffic and cost analyses, and prepared design alternatives for the corridor. On August 23, the team consultants presented the alternatives to residents and stakeholders at an evening community meeting at the *Ted C. Wills Community Center*. Approximately 77 people attended. After the presentation, participants broke into small groups and were asked to weigh in on proposed near-term and long-term improvements. Specifically, attendees were requested to select preferences between two short-term approaches on the segment between Shields and Hedges avenues: one that will convert the outside travel lane to the curb into a protected bicycle lane, and one that will convert the outside travel lane to the curb to a painted pedestrian walkway. Participants overwhelmingly chose the alternative with the protected bike lane.

Public Open House

The final community event took place as a drop-in Open House at the *Ted C. Wills Community Center* in the evening of November 8. Approximately 50 people attended. The Open House was an informal event where redesign concepts were on display and project team members were available to answer questions and provide clarification. Residents and stakeholders reviewed the design concepts and provided feedback.

2.3 Community Issues and Goals

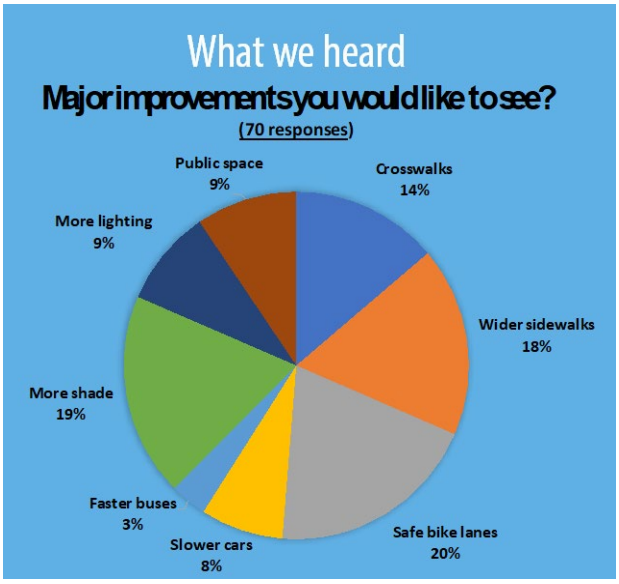
Impressions, ideas, goals and concerns were captured through a variety of activities, including stakeholder interviews, small group segment walks and bus rides, dot voting and mapping exercises.

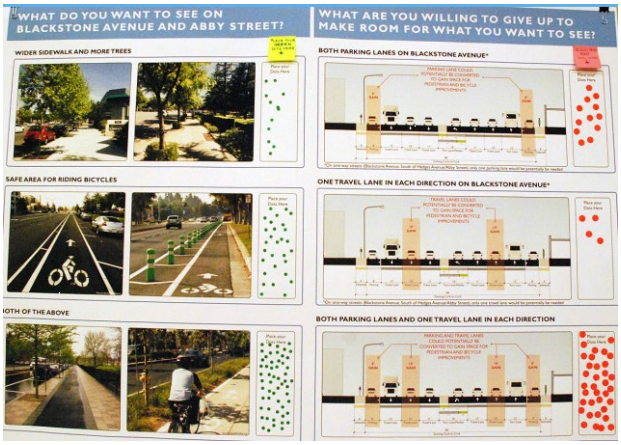
Early in the engagement process, community members identified corridor features and assets such as Fresno City College and the new bus rapid transit service. Challenges and weaknesses to address through the study were also identified, including the width, speed and safety of the roadway, lack of facilities for non-motorists, and barrenness of the corridor.

The need for pedestrian and bicycle improvements, trees and shade, lighting, comfortable public spaces and reduction of the dominance of automobiles were recurrent themes throughout the engagement process. Workshop participants expressed interest and willingness to convert on-street parking and one lane in each direction to allow for wider sidewalks, trees and safe areas for riding bicycles on Blackstone.

Figure 2.8: Highlights of input received from June 2018 workshops.

Workshop participants also provided numerous locations and ideas for improvements working in small groups around large table maps. In addition to changes to provide safe areas to cross the street, improve pedestrian access for people of all ages and abilities, and safe areas for bicycling, numerous ideas were expressed to help beautify public spaces, spur pedestrian- and transit-oriented development, and generally activate safe public places along the corridor.





Figures 2.9 & 2.10: Survey results & dot voting activity results from June 2018 workshops.

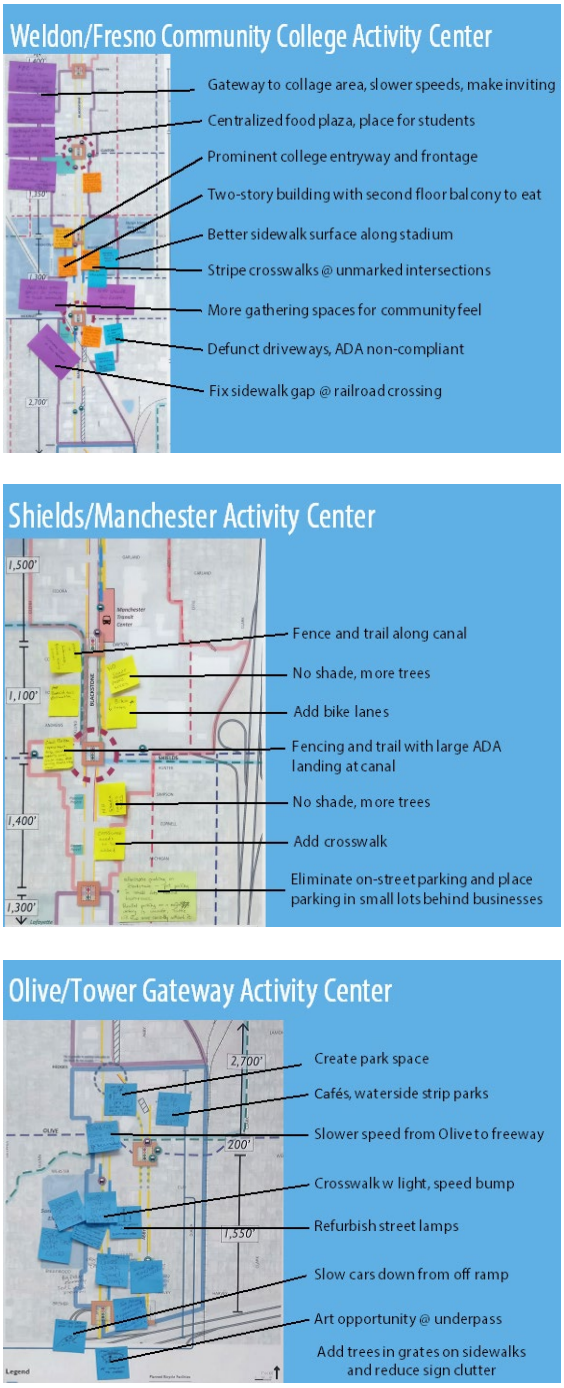


Figure 2.11: Examples of small group table map input results.

3. Complete Streets Framework and Design Concepts

The Complete Streets Framework and corridor design concepts presented in this section are a direct outcome of the City's policies and goals discussed above and the community input for desired improvements received during the public and stakeholder outreach conducted for the development of this Strategy (see *Chapter 2*).

3.1 Complete Streets Design Framework

The Complete Streets approach to designing multimodal streets – ranging from neighborhood streets to urban arterials – and its benefits (see Section 1.3) are well-established and applied in cities and communities around the country.

As discussed in the Planning and Policy Context section (Section 1.1), the State of California's Complete Streets Policy, the Regional Transportation Plan, and the City of Fresno's General Plan all provide strong support for pursuing the transformation of Southern Blackstone Avenue and Abby Street envisioned by the community on the basis of a Complete Streets Framework and by applying best practices for the design of multi-modal corridors that are based on the Complete Streets concept.

A foundational tenet of the Complete Streets concept is that the design of a street should balance the transportation, safety, and comfort needs of all users, including pedestrians, bicyclists, and transit riders as well as people driving automobiles and trucks. In addition, a Complete Street serves people of all ages, abilities, irrespective of their social or economic status.

As is illustrated by the typical existing cross-sections of the Blackstone Avenue/Abby Street Corridor (see *Figures 3.1 through 3.5*), the overwhelming majority of the right-of-way is currently dedicated to moving automobiles and trucks. The street lacks dedicated bicycle facilities and space for pedestrians traveling along the corridor and access to transit stops is limited to narrow sidewalks (6-foot wide typical north of Hedges Avenue and 10-foot wide along most portions of Blackstone and Abby Street south of Hedges) that are often further narrowed by local obstructions such as utility and signal poles, fire hydrants, and fences and other items encroaching from adjacent private properties into the public right-of-way.

Based on the aim of Complete Streets to accommodate the needs of all users and the fact that the available space within the public right-of-way is limited and currently allocated mostly to serve automobiles, the fundamental question is how space can be created for meaningful improvements for pedestrians and bicyclists.

The following two strategies are at the core of answering this question and the Complete Street Framework for Blackstone Avenue/Abby Street Corridor presented in this Strategy:

- Rebalancing the allocation of space within the Blackstone Avenue/Abby Street rights-of-way.
- Speed Management throughout the Corridor.

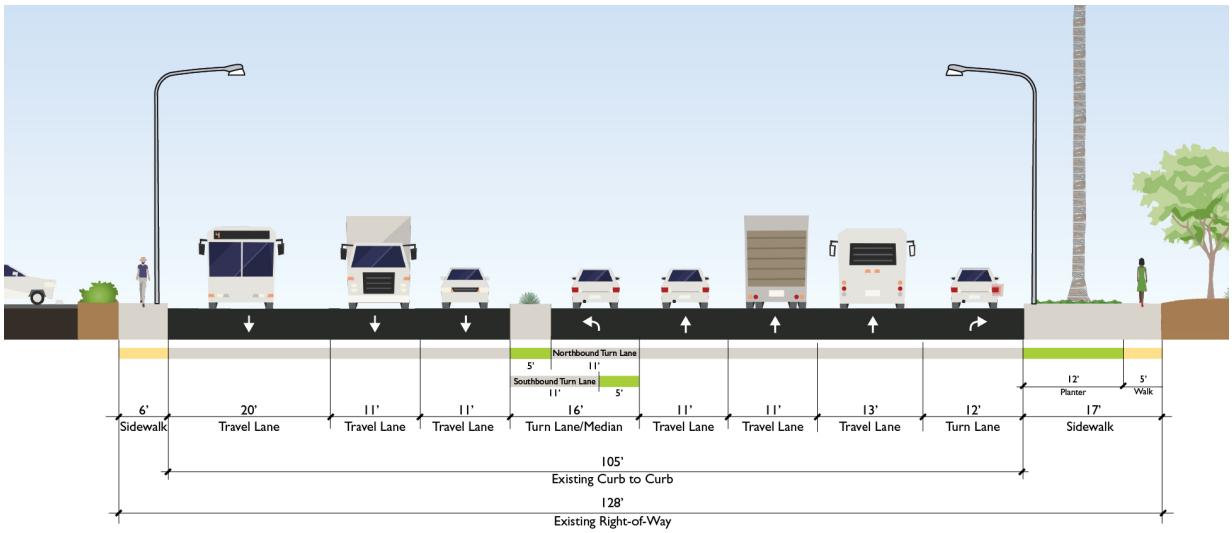


Figure 3.1: Existing Conditions Cross-section: Dakota Avenue to Dayton Avenue (facing North)

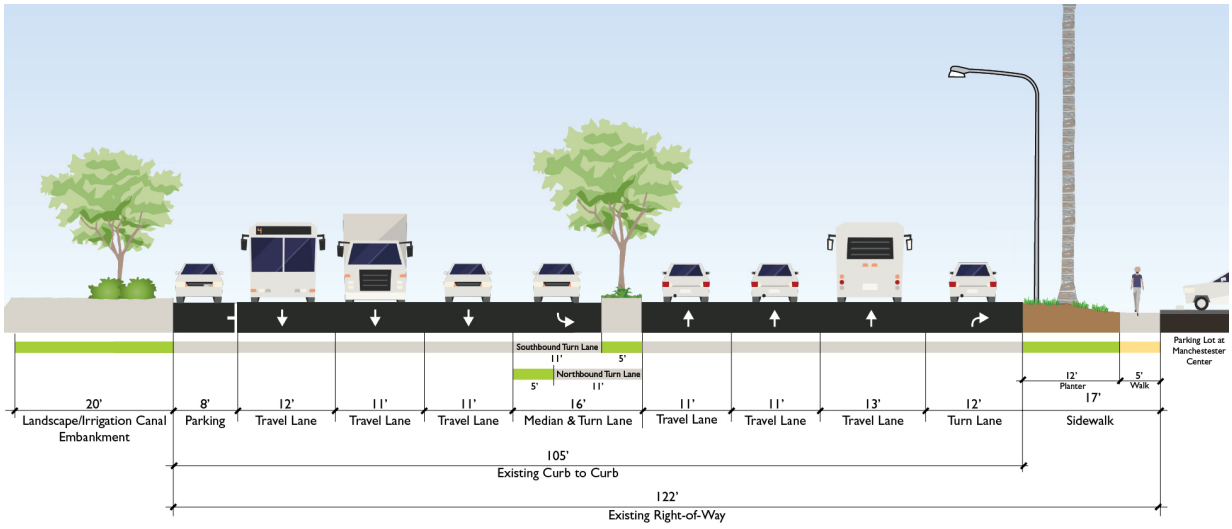


Figure 3.2: Existing Conditions Cross-section: Dayton Avenue to Shields Avenue (facing North)

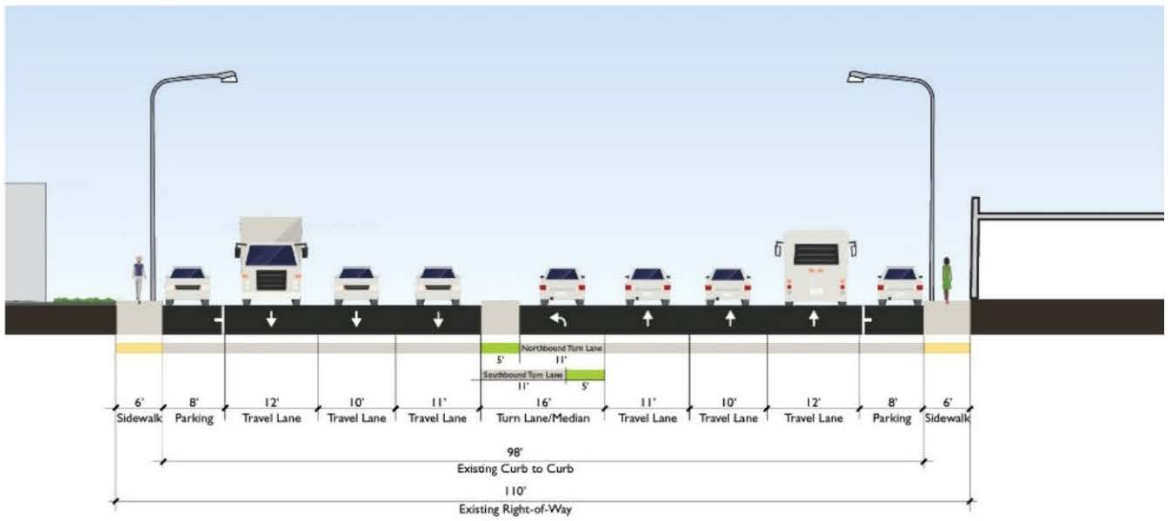


Fig 3.3 Existing Conditions Cross-section - Shields Avenue to Hedges Avenue (facing North)

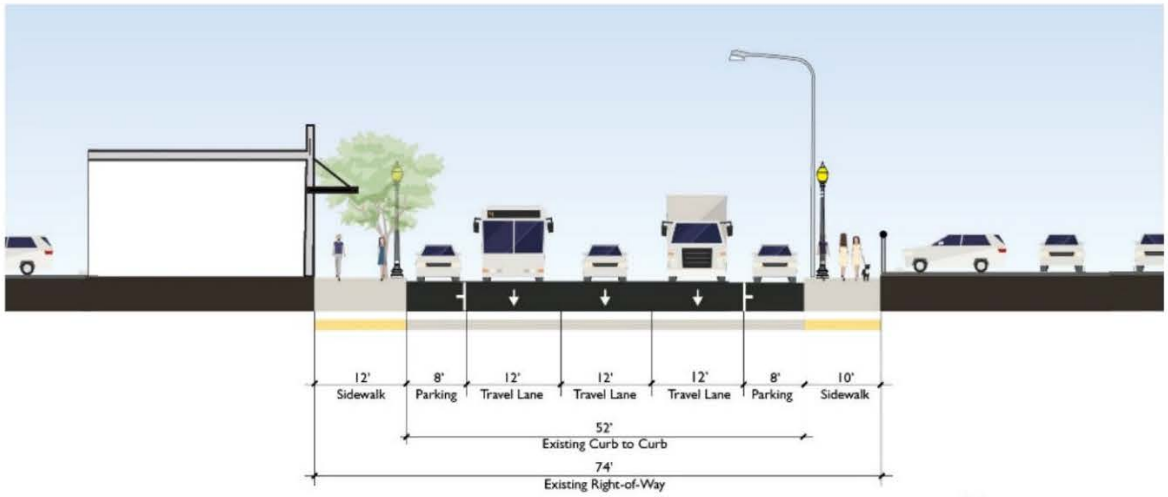


Fig 3.4 Existing Conditions Cross-section - Hedges Avenue to SR180 - Blackstone Avenue (facing North)

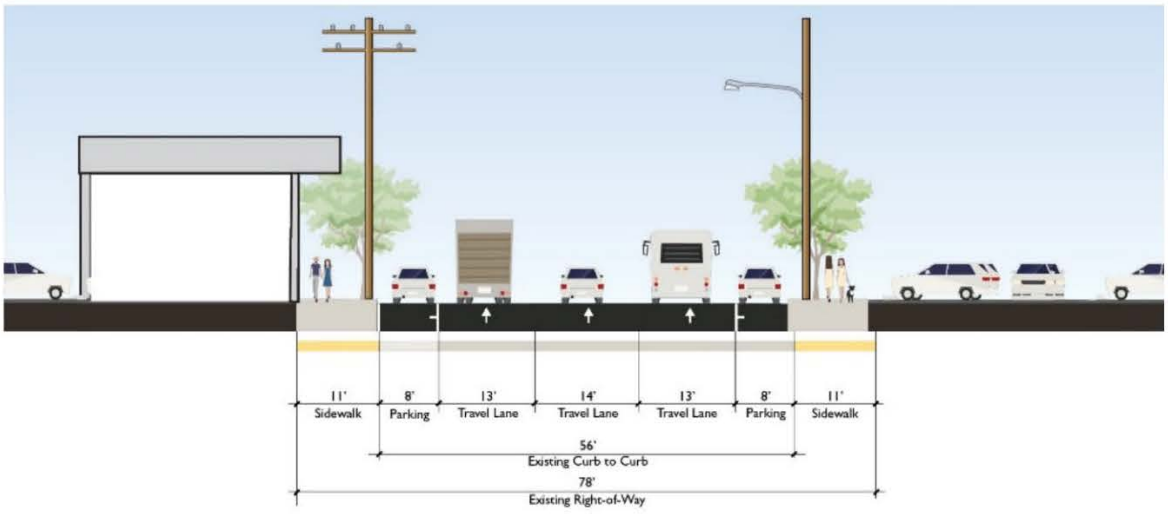


Fig 3.5 Existing Conditions Cross-section - Hedges Avenue to SR180 - Abby Street (facing North)

Rebalancing the Allocation of Space within the Public Right-of-Way

For the purpose of the Complete Street Framework, the extent to which space along the Corridor is reallocated from its current use to improvements that support the needs of currently underserved non-motorized modes (walking and bicycling) is based on two key criteria:

1. Community preferences for desired improvements expressed by participants in the public outreach efforts for this Strategy, and
2. Application of Best Practices for multimodal, pedestrian, and bicycle improvements

Community Preferences: As discussed in ***Section 2.2*** – *Community Engagement*, those who participated in the public outreach events for the study strongly favored that both, the walking and bicycling conditions be improved along the length of the Corridor as opposed to improving the conditions for just one of the two modes. As a result, outreach participants favored initial concepts, particularly for the area south of Shields Avenue, that reallocated space currently used for travel lanes and parking to accommodate the desired pedestrian, bicycle, and placemaking improvements.

Best Practices: The draft and final vision concepts for the near-term and long-term improvements presented in this Strategy were developed using the following resources for Best Practices in the design of multimodal, pedestrian, and bicycle improvements:

- *Urban Street Design Guide*. National Association of City Transportation Officials (NACTO). 2013
- *Designing Walkable Urban Thoroughfares: A Context Sensitive Approach*. Institute of Transportation Engineers. 2010
- *Urban Bikeway Design Guide*. National Association of City Transportation Officials (NACTO). 2014
- *Caltrans Class IV Design Guide, Design Information Bulletin 89-01*. California Department of Transportation (Caltrans). 2018.
- *California Manual of Uniform Traffic Control Devices (MUTCD)*. State of California, California State Transportation Agency, Department of Transportation. 2014
- *Transit Street Design Guide*, National Association of City Transportation Officials (NACTO), 2016

Some of the best practices used in the concept designs may not follow design practices and requirements used by the City of Fresno. Future design phases for the implementation of the envisioned improvements will have to reconcile potential conflicts. This process may include modifications to existing City policies, standard details, plans, or requirements.

Based on the City's goals for the project area, initial input from the community, and the above-listed best practices, initial concepts for rebalancing the Corridor's public right-of-way were prepared and then further refined based on additional community input and feedback from the Fresno Area Express (FAX), the Bicycle and Pedestrian Advisory Committee, and the City's Department of Public Works and the Development and Resource Management Department.

The following is a summary of key aspects of the final approach taken to rebalancing the allocation of public right-of-way space, which together formed the basis for development and refinement of the Design Concept Options presented in ***Section 3.4*** of this Strategy:

Community Support for Lane Reduction: Based on input from an overwhelming majority of participants in the public outreach process, the community supports the further exploration of removing one travel lane in each direction.

High-level Review of Feasibility of Lane Reduction: The removal of one travel lane in each direction, including throughout the couplet area is supported by an initial, high-level review of readily available traffic counts for traffic and turn volumes on the Corridor, the City's current level-of-service (LOS) related policies, and current and projected future traffic volumes on the Blackstone Avenue/Abby Street and parallel corridors (see ***Section 3.3*** for more detail).

Retention of Parking Lanes: Even though there was strong initial support from participants in the public outreach process for the removal of parking north of Hedges Avenue and the use of this space for pedestrian and bicycle improvements, the typical cross sections for long-term improvements between Shields Avenue and Hedges Avenue included in the Strategy retain parking lanes on either side of the street. The recommendation to retain parking lanes in the future is based on the following:

- The 16 cross-sectional feet of space that would have been gained from eliminating parking in this area would have largely gone toward for widening the existing sidewalks. However, a widening of the sidewalks along the Corridor is already required in Fresno's Development Code for all future development. This requirement stipulates a 6-foot wide sidewalk easement on private property. Because the future redevelopment of properties along the Corridor and the construction of long-term improvements are likely to occur following a similar time frame (5 to 10 years and beyond), it appears to be appropriate to assume that the widening of sidewalks by 6 feet will occur on easements that are located on private property.
- While on-street parking is underutilized today, it is likely viewed as an asset by investors in the type of future mixed-use development reflected in the City's General Plan. Because future development may also be a critical source for the funding of the envisioned street improvements, the presence of on-street parking represents a potential asset.
- Space in the parking lanes will also increasingly be needed to manage the demand for curb space needed to accommodate passenger pick-up and drop-off by vehicles associated with ride-hailing services (also called Transportation Network Companies or TNCs for short). In the future, this curb space will also be shared to accommodate passenger pick-up and drop-off by autonomous vehicles.
- On-street parking located between lanes with moving traffic and sidewalks and bikeways provides a physical buffer that further enhances comfort and sense of safety for pedestrians and bicyclists. At intersections, where parking is discontinued close to the location of crosswalks, the parking lane space can be used to effectively enhance pedestrian and bicycle safety and comfort by providing additional buffer and waiting space.
- Giving the future parking lanes a width of 10 feet (instead of the standard 8 feet), provides the near- and long-term concepts with additional flexibility as the parking lane could be converted into a dedicated BRT transit-only lane if future analysis should prove that the City's and community's goals are better served by this configuration at some point in the future[9].

Retaining all Travel Lanes: Design studies conducted early in the process indicated that the space gained from removing only the two parking lanes allows for design options that can meaningfully improve conditions for pedestrians or bicyclists but not both, at least not to the degree desired by the community.

[9] Future studies and the implementation of a Pilot Project of the near-term improvements will inform which of the two options should be implemented under the long-term improvements.

Speed Management

The speed of traffic and the degree to which pedestrians and bicyclists are buffered from fast moving traffic are key determinants for the level of comfort and safety persons experience that walk and cycle on the Blackstone Avenue/Abby Street Corridor. The relationship between speed and pedestrian safety has been examined in many studies. ***Figure 3.6*** specifically highlights the relationship between a vehicle's speed and a pedestrian's chances of survival in case of being hit by a car. At 40 miles per hour, which is

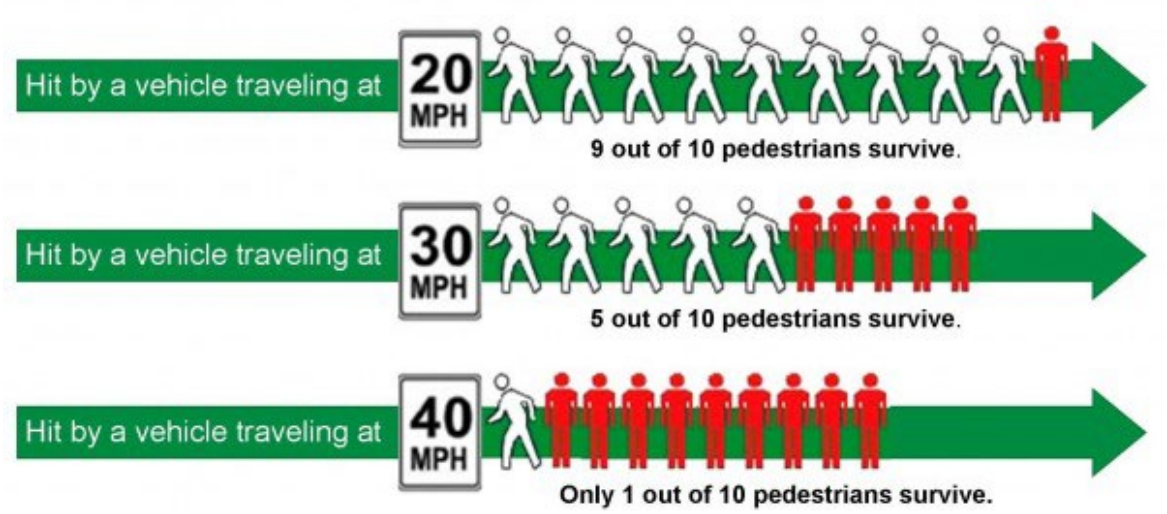


Figure 3.6: Posted Speeds relationship with Pedestrian Safety.
Source: *W.A. Leaf and D.F. Preusser, "Literature Review on Vehicle Travel Speeds and Pedestrian Injuries Among Selected Racial/Ethnic Groups," US Department of Transportation, National Highway Traffic Safety Administration (1999).*

the posted speed limit along the length of the Corridor, the chances of survival for a pedestrian hit is one in ten. The figure also indicates that at lower speeds, the pedestrian survival rate exponentially increases. In August 2018, the Insurance Institute for Highway Safety released a research study that suggests that lowering the speed limit by 5 mph on city streets can significantly improve safety for motorists, pedestrians, and bicyclists alike. The study also concluded that "these results demonstrate that safety benefits can be gained in urban areas from setting speed limits that take into account all roadway users, instead of setting speed limits based on the 85th percentile free-flow speeds." [10] While this particular research focused on pedestrians, similar safety benefits extend to bicyclists hit by automobiles.

For these safety reasons, it is strongly recommended that the City of Fresno study the feasibility of lowering the posted speed from 40 to 30 miles per hour during the future planning and design phases for near- and long-term improvements. As this process is guided by state law, namely the *2014 California Manual for Setting Speed Limits,* [11] and not the City of Fresno, a reduction in posted speed may need to occur in phases because the process takes into account the actual speed with which cars travel on a given street. During implementation of the recommended short-term improvements, actual speeds may not be reduced enough to warrant a reduction to 30 mph in a single step. It is hoped that under the envisioned long-term improvements, actual speeds are reduced due to the narrowed roadway to the degree necessary to warrant a reduction to 30 mph in order to realize the significant safety benefits associated with reduced vehicle speeds.

[10] Lowering the speed limit from 30 to 25 mph in Boston: effects on vehicle speeds. https://www.iihs.org/frontend/iihs/documents/masterfiledocs.ashx?id=2168

[11] "California Manual for Setting Speed Limits", Division of Traffic Operations California Department of Transportation, 2014

In addition to providing the safety benefits for pedestrians and bicyclists discussed above, the lowering of the posted speed limit is also a factor in the envisioned reduction in the number of lanes (see Rebalancing the Allocation of Space above) and in the desired increase in safe crossings across the Corridor.

Relationship to Reduction in Number of Lanes: The capacity for throughput of vehicles of each travel lane changes with the speed at which vehicles travel and is at its highest at about 30 miles per hour. This is illustrated in the diagram in ***Figure 3.7***, taken from the *Highway Capacity Manual*[12]. This finding supports the approach taken in the near- and long-term vision concept, which reduce the number of travel lanes. Lowering the speed limit to 30 miles per hour, supports this approach by increasing the potential capacity of the remaining lanes to their maximum.

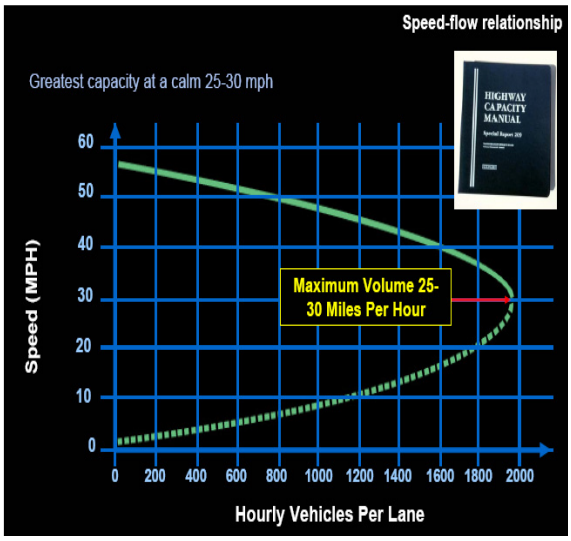


Figure 3.7: Lane Capacity in relation to speed

Increasing the Frequency of Safe Crosswalks: Posted speed is one of several factors used in the City of Fresno's process to determine what type of improvements are need for the City to stripe, signalize or otherwise dedicate a formal crosswalk. The table in ***Figure 3.8*** provides an overview of these factors and shows that for the one-way portions of the Corridor (Blackstone Avenue and Abby Street south of Hedges Avenue) a lowering of the speed limit from 40 to 30 miles per hour would allow the use of less costly and easier to implement crosswalk improvements, such as high-visibility crosswalks and rectangular rapidly flashing beacons (RRFBs). For the area north of Hedges Avenue, where average daily traffic (ADT) numbers are higher and the cross section includes four travel lanes with a raised median, a reduction in posted speed does not significantly affect the choice of crossing improvements. However, the use of

							Blackstone /Abby St South of Olive			Blackstone Ave North of Olive		
Roadway Type	Vehicle ADT ≤9,000			Vehicle ADT >9,000 to 12,000			Vehicle ADT >12,000 to 15,000			Vehicle ADT ≥15,000		
	≤30 mph	35 mph	40 mph	≤30 mph	35 mph	40 mph	≤30 mph	35 mph	40 mph	≤30 mph	35 mph	40 mph
2 Lanes	A	A	B	A	A	B	**A**	**A**	**C**	A	B	C
3 Lanes	A	A	B	A	B	B	B	B	C	B	C	C
4 Lanes with Raised Median	A	A	C	A	B	C	B	B	C	**C**	**C**	**C**
4 Lanes without Raised Median	A	B	C	B	B	C	C	C	C	C	C	C

A = requires all of the following: a high visibility crosswalk, signs and pavement word markings
B = requires all of the following: rectangular rapid flashing beacons, high visibility crosswalk, signs and pavement word markings
C = requires all of the following: pedestrian hybrid beacon (HAWKS) or pedestrian signal, high visibility crosswalk, signs and pavement markings

Figure 3.8: Factors considered by the City of Fresno in determining the location of crosswalks

[12] Highway Capacity Manual, Transportation Research Board

pedestrian hybrid beacons PHBs) at appropriate locations along the Corridor would help to lower the overall cost of signal improvements compared to the sole use of full traffic signals.[13]

There is also a direct relationship between the actual speed at which vehicles travel along a corridor and its physical design. The average driver will tend to drive at higher speeds on wide roadways and slower on narrower streets. For this intuitive reason, it can be expected that in particular under the community's vision for long-term improvements, which includes the visual narrowing of the roadway that carries vehicular traffic, will support the reduction in posted speed. The planting of street trees in sidewalks and medians will also further the visual narrowing of the overall street width.

For all of the above reasons engaging in the state-mandated process for lowering of the posted speed limit between Dakota Avenue and Highway 180 is a core recommendation of this Strategy.

3.2 Recommendations for Corridor-wide Improvements

In addition to the core concepts of rebalancing the right-of-way and a reduction of the speed limit discussed above, there are a number of design concepts and Complete Street best practices that are commonly recommended for the type of urban street and transit corridor that is described in the City's land use and transportation goals discussed in ***Section 1.2*** and the community goals outlined in ***Section 2.3***.

The following paragraphs cover concepts and design elements that are recommended for use at a corridor-wide level between Dakota Avenue and Highway 180. Where these design concepts and elements or the rebalancing of the corridor right-of-way are adapted to specific conditions applicable to a particular segment, this is described in the segment-by-segment recommendations presented in the following chapter of the Strategy.

The range and detail-level of the information presented in this and the segment-based section of the Strategy is tailored to setting a Complete Streets Framework while allowing future design phases to make refinements, introduce new recommendations, and add detail based on findings from future studies of existing conditions and performance measures. The focus here is on covering those Complete Street design concepts and elements that form the foundation of the community's vision for changes along the Corridor and basis for future design phases in the implementation of this vision.

Pedestrian and Bicycle-Friendly Intersections

Frequency of Safe Crossings

The distance between intersections with signalized crosswalks along the Blackstone Avenue/Abby Street Corridor is currently about one quarter of a mile[14]. This is significantly farther than would be convenient for most pedestrians, in particular those with disabilities, the elderly, or persons with mobility devices or strollers. The distant spacing of signalized crosswalks likely is a major factor in why many pedestrians can be observed crossing the Corridor in mid-block locations or at legal but unmarked crossings located at one of the many unsignalized four-way and T-intersections. As a result, participants in the public outreach for this Strategy identified the introduction of additional safe crosswalks as one of the most urgently needed improvements.

A key recommendation of this Strategy therefore is that future design phases for the implementation of the envisioned near- and long-term improvements, include the addition of new crosswalks with the goal

[13] To this date, The City of Fresno has exclusively built crosswalks at full signal locations. The potential consideration of pedestrian hybrid beacons (HAWK signals) under a lowered speed limit, has the potential to reduce the costs involved in adding more crosswalks.

[14] After implementation of the planned and funded new traffic signals at the Blackstone/Floradora and Blackstone/Webster intersections.

to reduce the distance between safe crosswalk locations initially from one quarter to one eighth of a mile, with additional crosswalks later being added in between these locations where this is supported by future development, as increased presence of pedestrians and bicyclists, and other criteria used by the City of Fresno in their crosswalk warrant process.

Under current conditions, it is difficult to obtain warrants for new crossings, which, at a posted speed of 40 miles per hour and where three travel lanes are present, require the construction of a full traffic signal. Construction of a full traffic signal is a costly improvement. Under the near-term and long-term improvements proposed in this Strategy (see ***Section 3.4***), the thresholds for the approval of new and less costly crosswalk improvements, such as a pedestrian hybrid beacons (PHBs, formerly known as HAWK signals) would be lowered based on the following three main factors (also see Table in ***Figure 3.8***):

1. Near-term and long-term improvements propose a reduction in the number of travel lanes from three to two along the length of the Corridor.
2. The recommended strategy of reducing the posted speed limit from 40 miles per hour to 35 or 30 miles (preferred) per hour.
3. The expectation that as the development of mixed use, transit-oriented uses along the Corridor is taking place, and the multi-modal improvements are implemented, the number of pedestrians and bicyclists will increase.

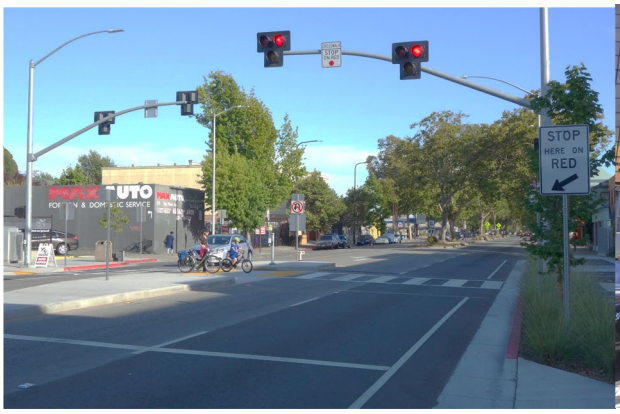


Figure 3.9: A Pedestrian Hybrid Beacon (PHB) in Albany, CA

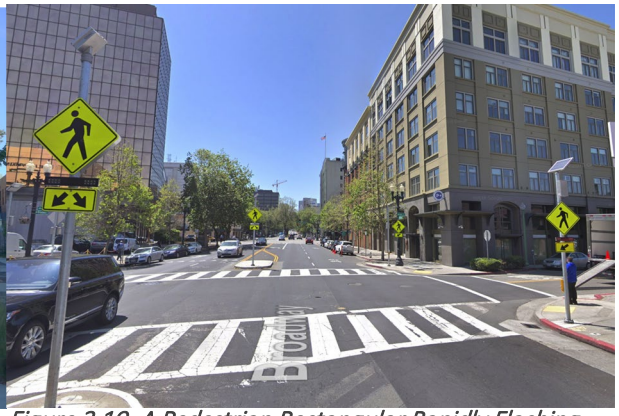


Figure 3.10: A Pedestrian Rectangular Rapidly Flashing Beacons (RRFBs) in Oakland CA (Source: Google Streetview)

In addition to using PHB signals (see example in ***Figure 3.9***) at potential new crosswalks north of Hedges, the lower existing and projected traffic volumes in the Blackstone Avenue/Abby Street couplet area south of Hedges Avenue, would allow for the consideration of an additional pedestrian crossing safety device called rectangular rapidly flashing beacons (RRFBs). RRFBs (see example in ***Figure 3.10***) are a significantly less costly improvement compared to full or PHB.

In order to respond to the public's desire for additional safe crosswalks in the near-term, it is recommended to study and identify suitable locations for the implementation of PHB signals prior to the construction of long-term improvements. This should be done in parallel to a comprehensive study of all unsignalized dedicated left-turn lanes north of Hedges Avenue. The goal of this strategy is to determine which of the existing left-turn lanes can be shortened or eliminated. In locations where left-turn lanes can be eliminated, ample space is created for near-term and short-term improvements to include median refuges and therefore as potential locations for the installation of a PHB.

Figure 3.11 shows the results of an initial screening for future crosswalks, including potential locations for new full signals, PHBs, or RRFBs as well as locations at which the shortening of elimination of a dedicated left-turn lane should be studied.

Pedestrian and Bicycle-friendly Intersection Improvements

In addition to an increase in the frequency of safe crosswalk locations along the Corridor, the community expressed strong interest in intersections being designed to generally be safe and comfortable for pedestrians and bicyclists. Pedestrian- and bicycle friendly intersections are also a central component of the Complete Streets approach and many best practices are available and can be tailored to fit the local conditions.

The following is a list of pedestrian-, bicycle-, and transit-friendly intersection treatments that should be considered when the detailed designs for intersections that are compatible with the Strategy's overall Corridor vision are developed. During this design phase, potentially needed studies will be conducted, and technical design details will take into account each intersection's geometry, traffic and intersection turn volumes, and signalization. Recommended treatments include:

High Visibility Striping of Crosswalks at Signalized and Unsignalized Intersection: Striping crosswalks across all intersection approaches as high-visibility crosswalks increases the general visibility of pedestrian treatments and serves to emphasize the potential presence of pedestrians along a multimodal corridor.

Directional Curb Ramps: Directional curb ramps at all crosswalks help to align the path of travel for wheelchair users and persons with impaired vision so that it is parallel to the edges of crosswalks.

Median Refuges: Median refuges of 6 feet (min.) in width or more provide a safe space for pedestrians and bicyclists who are unable to complete crossing the street during the provided pedestrian signal phase.

Curb Extensions (Bulb-Outs): Curb extensions shorten the crossing distance and can be designed to provide additional space at intersections for street furnishings, bicycle parking, landscaping (including green infrastructure[15]) or just to provide additional space for pedestrians waiting to cross the street.

Tight Curb Radii: Tightening the radii of curbs at intersection corners to the needed minimum slows down turning vehicles and reduces pedestrian crossing distance.

Pedestrian Countdown Signal Heads: Provide pedestrians with a real-time indication of how much green time remains for safely crossing the street[16].

Accessible Pedestrian Signal (APS): Accessible pedestrian signals are devices that communicate the "Walk" and "Don't Walk" phases at signalized intersections in audible and vibro-tactical form to pedestrians who are blind or have low vision[17].

Leading Pedestrian Interval: Provides pedestrians with a head start into the crosswalk prior to vehicles traveling in the same direction getting a green light.

Separate Bicycle Signal Phase and Signal Head: Adding bicycle signals provides a signal phasing driven separation between the progression of bicyclists through an intersection and that of vehicular right-turns.

Fig 3.11: 11x17 Corridor improvement Map

[15] Green Infrastructure is a landscape-based approach to managing stormwater runoff from roadway and sidewalk surfaces.

[16] This improvement has already been funded and will be implemented by the City of Fresno over the coming years.

[17] This improvement has already been funded and will be implemented by the City of Fresno over the coming years.

RECOMMENDED LOCATIONS FOR FUTURE CROSSWALK AND INTERSECTION IMPROVEMENTS

SOUTHERN BLACKSTONE AVENUE SMART MOBILITY PROJECT

Legend

- Schools
- Parks
- Vacant or planned project
- Canal
- Rail
- Signalized Intersection (Existing)
- Signalized Intersection with dedicated left-turn signal (Existing)
- Unsignalized crosswalk (Existing)
- Study Implementation of RRFB after lane reduction and reduction of posted speed to 30 mph
- Existing signalized intersection and crosswalks
- Planned signalized intersection and crosswalks
- Study implementation of a new signalized intersection and crosswalks
- BRT bus stop
- Local bus stop
- Study implementation of HAWK signal after lane reduction (near-term or long-term). Retain both left-turn lanes
- Study removal of south- and north-bound left-turn lanes and construction of wide median through intersection
- Study removal of north-bound left-turn lane and implementation of HAWK signal after lane reduction (near-term or long-term)
- Study removal of south-bound left-turn lane and implementation of HAWK signal after lane reduction (near-term or long-term)

Fig 3.11: Corridor Improvement Map

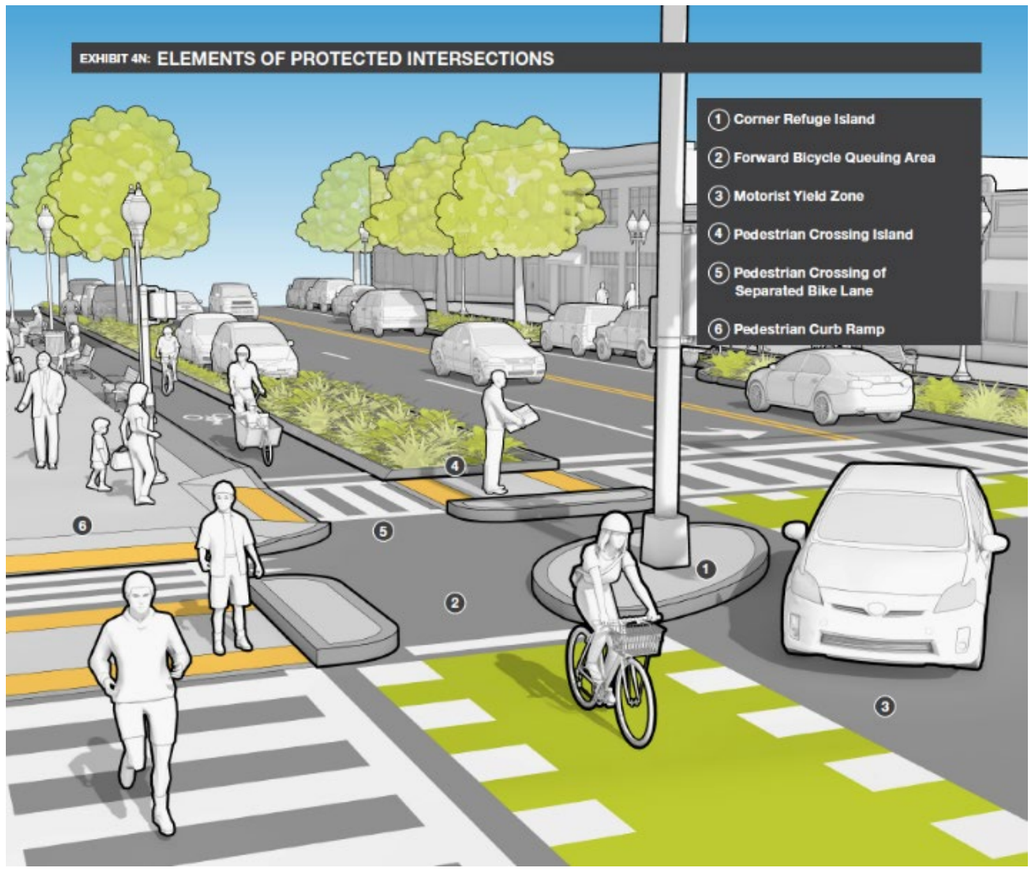


Fig 3.12: Protected Intersection Diagram (Source: Separated Bike Lane Planning & Design Guide)

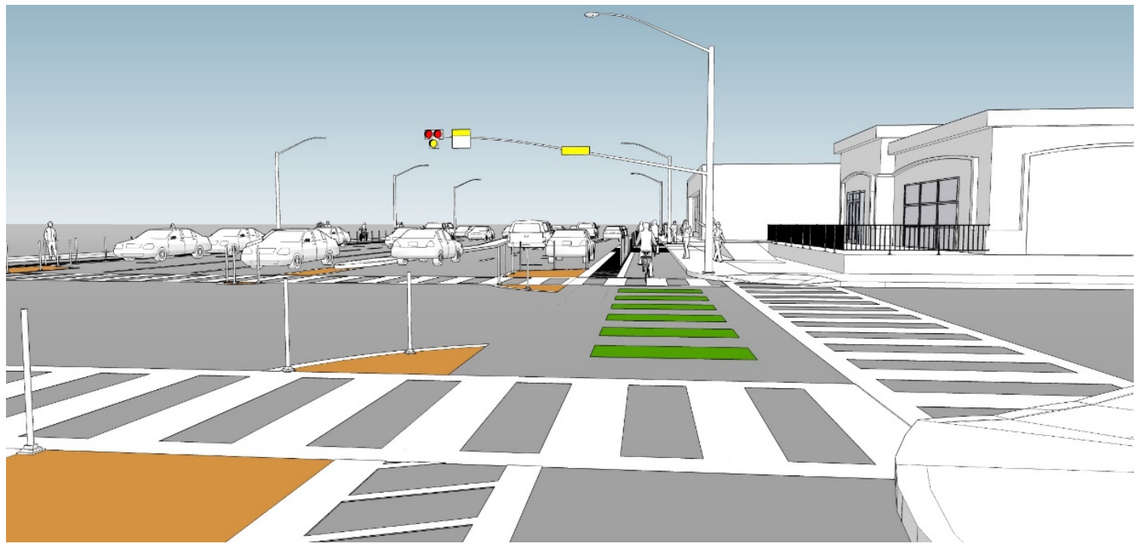


Fig 3.13: Example of soft-hit posts as curb-extensions, median-refuges

Fig 3.14: Example of soft-hit posts as median-refuges (Source: Google Streetview)

Protected Intersections: Where determined appropriate, a protected intersection (see diagram in ***Figure 3.12***) provides support for turning movements between bicycle lanes located on cross streets and the separated bikeway proposed for the Blackstone Avenue/Abby Street Corridor.

Transit Signal Priority (TSP): A range of TSP tools is available to modify traffic signal timing or phasing when transit vehicles are present or approaching in order to reduce delays and waiting times for buses. TSP was deployed along the Blackstone Avenue/Abby Street Corridor along with implementation of the BRT. Modifications to the existing TSP and an expansion of its use to proposed new signal locations would be an integral part of future multimodal improvements.

Near-term Intersection Improvements

The detailed intersection improvements for the proposed near-term improvements will be developed during future design phases for the Corridor. During this process, consideration should be given to the following potential near-term intersection treatment concepts:

- Use interim treatments that utilize cost effective materials, such as paint and "soft-hit" plastic posts[18] (often referred to as "paint & plastic" improvements) to delineate the approximate locations of permanent intersection improvements, such as curb extensions on cross streets, median refuges, and other "islands" that buffer spaces occupied by crosswalks and bikeways (see ***Figure 3.13***).
- Create temporary median refuges for pedestrians at the end of existing median noses by:
    - Reducing the width of existing left-turn lanes from 11 to 10 feet by adding an edge stripe that parallels the existing median curb. This increases the width of the area next to the median nose from 5 to 6 feet.
    - Delineate the created space with solid paint and soft-hit posts (see example in ***Figure 3.14***).
- Study and consider the early implementation of some of the potential locations of pedestrian hybrid beacons (PHBs) shown in ***Figure 3.11***.

Universal Design

The concept of Universal Design refers to a design approach that strives to create environments that can be accessed and used to the greatest extent possible by people regardless of their age or ability. Universal design is different from the requirements set by Federal and State accessibility standards in that it strives to exceed minimum requirements when doing so further increases accessibility and usability of the respective environment for people of an even broader range of age and ability as compared to an environment in which only ADA minimums are met.

This Strategy will present improvements to the Blackstone Avenue/Abby Street Corridor at the concept design level, with most of the design details that determine the degree and quality of accessibility still needing to be detailed during subsequent design phases. It is therefore important that the future detailed design of the envisioned improvements, and particularly the design of the future intersection and crosswalk improvements, incorporate accessibility features following best practices for accessibility of public rights-of-ways, such as the United States Access Board's *Public Rights of Way Accessibility Guidelines* (PROWAG) and under consideration of the universal design approach. The cross-section design concepts for long-term improvement presented in this Strategy represent a beginning of this process as all of the sections include new sidewalks whose widths significantly exceed the ADA minimum clear widths for path of travel.

[18] Surface-mounted, plastic posts (or delineators) that give way or tip over if touched or hit by a car or bicyclists.

While the construction of new and wider sidewalks under the proposed long-term improvements provides ample opportunity for the application of Universal Design at intersections and in mid-block locations, the width of sidewalks under the near-term improvements remains unchanged. The following actions should be considered in conjunction with implementation of the recommended near-term improvements in order to also improve accessibility to the highest degree feasible:

1. Close gaps in the continuity of existing sidewalks at the locations identified in ***Section 3.4*** – *Design Concepts by Segment*.
2. Review the Corridor for inactive driveways and properties with multiple driveways. Work with property and business owners to replace inactive and expendable driveways with standard sidewalk.
3. Remove, to the extent feasible, obstructions that impede the pedestrian movement within the path of travel required by current ADA and CBC standards. Such obstructions may include utility poles, anchoring cables,[19] and cabinets, signal controller cabinets, and fire hydrants.
4. Consider interim upgrades (prior to construction of long-term improvements) to existing sidewalk surfaces that are cracked, lifted by tree roots, or have excessive cross slopes (more than 2 percent).
5. Consider striping improvements that demarcate the alignment of sidewalks between McKinley Avenue and Hedges Avenue, where asphalt-surfaced sidewalks are frequently indistinguishable from adjacent driveways, parking lots, and auto repair yards. In the same area, remove obstructions placed by businesses within the alignment of the asphalted sidewalks.
6. Work with property and business owners along the Corridor to eliminate encroachments of improvements on private properties into the public right-of-way along the backside of sidewalks.

During future design phases of the envisioned improvements, consult the following:

- Universal Design best practices
- Americans with Disabilities Act (ADA)
- California Building Code (2016)
- Public Rights of Way Accessibility Guidelines (PROWAG)

With respect to the redesign of the Blackstone Avenue/Abby Street Corridor, this means considering the following:

- Accessible sidewalks that exceed ADA minimums
- Directional Curb Ramps
- Accessible Pedestrian Signal (APS) and push buttons[20]
- Accessible On-street parking
- Accessible transit stops and amenities
- Accessible street furniture and way-finding signage

Other Corridor-wide Improvement Concepts

Streetscape Improvements

Street trees that provide shade and improved lighting are the streetscape improvements identified during the community outreach events for this Strategy as most desirable. Both provide a broad range of benefits to the overall street design and pedestrians and bicyclists in particular. Street trees create shade,

[19] The City of Fresno is planning to underground the existing overhead utilities along the Corridor.

[20] This improvement has already been funded and will be implemented by the City of Fresno over the coming years.

buffer pedestrians from roadway traffic, mitigate the urban heat island effect, and are the backbone of an aesthetically pleasing streetscape environment that people enjoy walking in and shopping along.

High quality street lighting increases the safety for all users and can encourage nighttime usage of sidewalks, bikeways, and bus stops, along with that of restaurants and other businesses. The use of pedestrian-scale (14 to 20 feet in height) in addition to the tall light fixtures that light roadway and crosswalks, provides lighting that is specifically directed at sidewalks and bikeways. Due to their smaller size and closer spacing (40 to 50 feet maximum), pedestrian-scale light fixtures provide a human scale, and, along with street trees, establish a clear rhythm and sense of place along transportation corridors.

Street Trees in Sidewalks and Medians

New street trees should be planted along the length of the Corridor as illustrated in the long-term cross sections in ***Section 3.4***. This includes landscape strips and tree wells located between the separated bikeway and sidewalk areas designated for pedestrian travel as well as all medians wider than 8 feet. All new trees should be shade trees. The specific selection of tree species should occur with input from the City arborist and the local community as tree species and their combination strongly contribute to the sense of place and identity of a given Corridor segment or activity center.

As previously discussed in the Pedestrian and Bicycle-friendly Intersections section, the recommended future comprehensive study of the Corridor north of Hedges for existing left turn lanes that can either be shortened or eliminated may result in opportunities to widen the narrow existing medians to a width and length that allows the planting of new median trees. In addition to the benefit of providing shade to paved areas, tree-lined sections of medians along the length of the Corridor can also help to visually break up the width of the street and the visible expanse of asphalt in the roadway. In order to reduce the amount of water needed for irrigation, the landscaping of medians should be limited to trees, with the remainder of the median surface treated as stamped and colored concrete. In combination with the streetscape treatments used along sidewalks and at intersections, these landscape and hardscape treatments can be used to further establish community identity and a sense of place along the Corridor or for one of its segments.

Pedestrian-Scale Light Fixtures

Pedestrian-scale light fixtures should be introduced along the length of the Corridor and supplemented with additional fixtures of the same style where they already exist between Olive Avenue and Highway 180. Pedestrian-scale fixtures should be placed in between the locations of existing roadway fixtures and near street corners. The specific designs of the fixtures should be selected with input from the local community and business interests as style and color of the fixtures strongly contribute to the sense of place and identity of a given Corridor segment or activity center. The style and color of new pedestrian-scale fixtures will also establish the basis for selecting the look and feel of other amenities in the palette of coordinated street furniture that should be developed during future design phases. It is recommended that the palette of street furniture used in each of the three activity centers be distinct from that used in the others. This can, for instance, be achieved by using fixtures and furniture with contemporary rather than traditional design characteristics.

It is also recommended that the new light fixtures be fitted with hardware that allows for the installation of decorative banners that identify the three activity centers or to promote local events.

Pedestrian and Bicycle Wayfinding Signage

Bicycle signage guides cyclists with directional and distance information to key destinations and connections to other routes in the city's network of bicycle facilities. Signs are placed at key decision points along the route, such as at intersections of two or more bikeways and other locations along a

Figures 3.15: Parking Screening

Figures 3.16: Parking Screening

Figures 3.17: Pavements to Parks (Source: LA Streets Blog)

Figures 3.18: Pavements to Parks (Source: LA Streets Blog)

bicycle route. Bicycle wayfinding signage should follow established standards[21] and be introduced with implementation of the recommended long-term bicycle improvements along the Blackstone/Abby Corridor.

Pedestrian wayfinding signage provides directional information to people navigating destinations within a pedestrian-oriented district or between a transit stop and nearby civic or retail destinations that are frequented by larger numbers of pedestrians. Pedestrian wayfinding signage should be introduced with implementation of the recommended long-term pedestrian improvements in locations where pedestrian-oriented districts emerge along the Blackstone/Abby Corridor and where civic destinations are located in proximity to existing BRT stops. The style and color of the pedestrian wayfinding signage can be coordinated with the look and feel of other amenities in the palette of coordinated street furniture that should be developed during future design phases.

Bicycle Parking

It is recommended that bicycle parking (e.g. bicycle racks) be provided in locations along the Corridor where existing or planned retail or civic uses attract larger numbers of cyclists. Consideration should also be given to adding bicycle parking in close proximity to BRT stops.

Corridor-Wide Near-Term Streetscape improvements

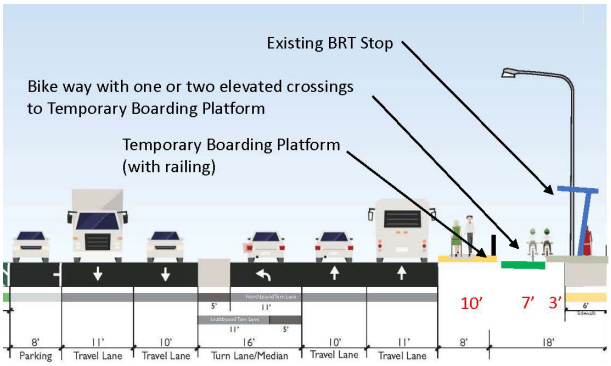
The following is a list of opportunities for streetscape improvements that can be combined with the recommended near-term improvements:

1. Work with property owners and civic institutions to explore the placement of Blackstone Avenue/Abby Street-branded banners on new light posts that the City is installing in 2019.
2. Work with property owners to plant trees in existing landscape buffers adjacent to existing sidewalks.

[21] *California Manual of Uniform Traffic Control Devices* (MUTCD), 2014

3. Work with property owners to screen existing parking lots or paved areas backing onto the sidewalk with low walls, greened fences, or trellises (see ***Figures 3.15*** *and* ***3.16***).
4. Work with property owners to create temporary "Pavement-to-Parks"-type improvements, such as pop up parks, hosting of food trucks or small-scale local community events (see ***Figures 3.17*** *and* ***3.18***).

Additional opportunities for segment-specific near- and long-term streetscape improvements are provided in ***Section 3.4***).



Figures 3.19: Temporary Boarding Islands

Figures 3.20: Temporary Boarding Island in Oakland, CA

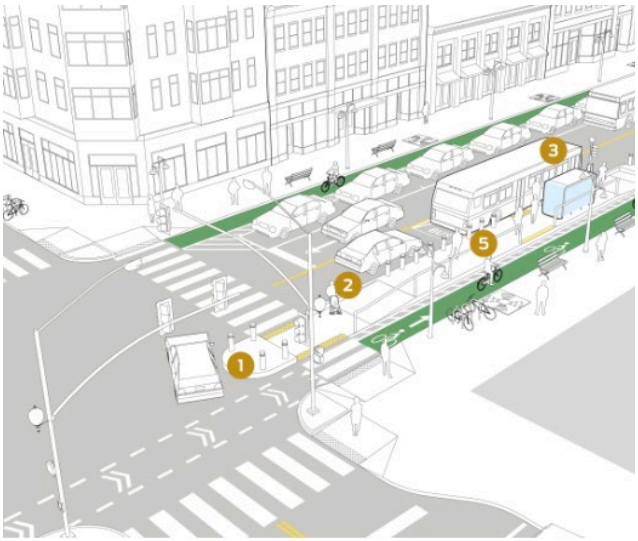

Figures 3.21: Bikeway behind bus shelter

Transit Passenger Environment at FAX Q Line Stops

The current high-quality passenger environment at the Q line's Bus Rapid Transit (BRT) stops, which includes a shelter, seating, real time bus arrival display, and other amenities would remain unchanged under the near-term improvements with the exception that a temporary boarding island is needed to provide space for boarding and alighting passengers next to the outer of the two remaining travel lanes (***Figure 3.19***). Such temporary bus boarding islands are commercially available and have been used by transit agencies in other cities, such as Oakland, CA (***Figure 3.20***). An alternate approach is to locate the bikeway behind the bus shelter similar to the condition shown in ***Figure 3.21***. Under this configuration bicyclists are guided to use a curb ramp onto the sidewalk which allows the Q-Line buses to pull up to the existing BRT stops as they currently do. Where the right-of-way is too narrow to accommodate a temporary bikeway in addition to a 6-foot wide (min.) sidewalk, bicyclists and buses would share the bus pullout area. The pavement in this mixing-zone would be treated with dashed green skip stripes that are typically used where bikeways pass in front of driveways (***Figure 3.22***).

Under the long-term improvements, all existing Q line's Bus Rapid Transit (BRT) stops and amenities would be relocated to a new permanent transit passenger area that is located next to the outermost travel lane. The relocated stops will provide an

Figures 3.22: Bikeway-Driveway mixing zone



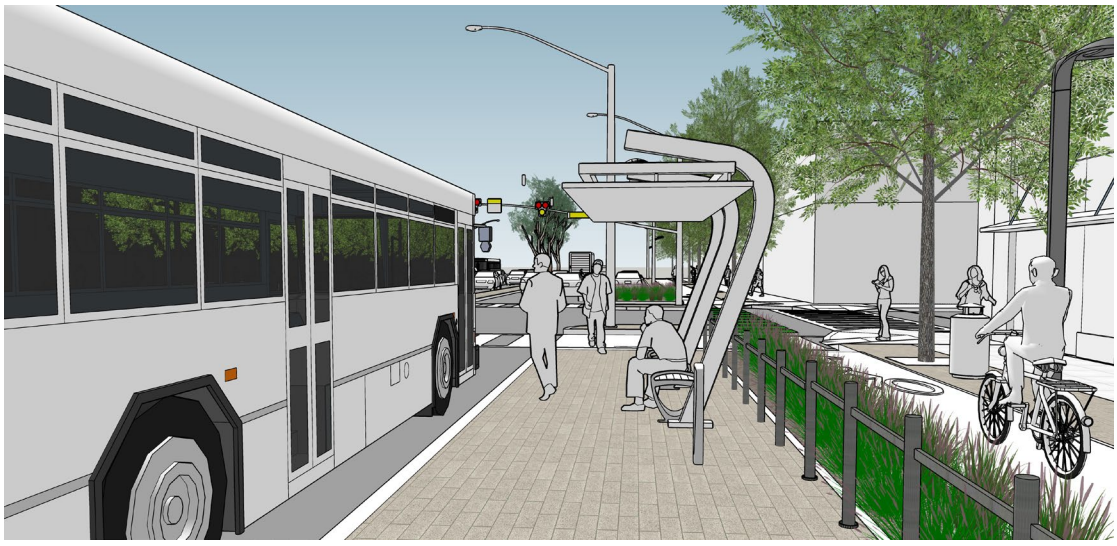
Figures 3.23: Bikeway at Bus Stop Areas (Source: NACTO Transit Street Design Guide)

increased amount of space to BRT passengers compared to current conditions. It is recommended to minimize potential conflicts between bus passengers and bicyclists by following current best practices for the configuration of bikeways at bus stop areas as described in the NACTO Transit Street Design Guide (see ***Figure 3.23***). ***Figure 3.24*** illustrates what a relocated BRT stop along Blackstone Avenue may look like.

Reducing the Number and Width of Driveways

The many existing driveways create a series of potential conflict points between vehicles and pedestrians and bicyclists along the majority of the Corridor. In addition, there are many driveways of extensive or excessive widths, which create issues with respect to the maximum cross slope allowed under ADA requirements and an unnecessary exposure of pedestrians and bicyclists to turning vehicles.

As land uses along the Blackstone Avenue/Abby Street Corridor redevelop and the street is reconfigured following the near- and long-term concepts, it is recommended to utilize access management strategies and tools that reduce the number of driveways along the Corridor. This may include accessing existing or future parking lots or parking garages from side streets or by sharing driveways between adjacent properties to the extent feasible as well as



Figures 3.24(A): Blackstone simulation at Bus Stops (facing North)

narrowing the width of driveways to a minimum. The reduction in driveway frequency and width will increase pedestrian and bicycle safety as well as comfort for wheelchair users and persons with impaired vision traveling along the Corridor.

Figures 3.24(B): Blackstone simulation at Sidewalk (facing North)

Figures 3.24(C): Blackstone simulation at Bikeway (facing North)

Figures 3.24(D): Blackstone simulation at Roadway (facing North)

3.3 Initial Feasibility Assessment of Potential Lane Reductions

The purpose of this section is to provide an initial assessment of Blackstone Avenue in relation to potential lane reductions along the corridor. This is a high-level assessment and a more detailed analysis will be required as segments are proposed for improvement.

Existing and projected future traffic volumes were utilized to assess the impacts of potential lane reductions along Blackstone Avenue. For this purpose, the following eight (8) intersections and nine (9) roadway sections were analyzed within the project area:

Intersections

- Blackstone Avenue /Dakota Avenue
- Blackstone Avenue / Shields Avenue
- Blackstone Avenue / Clinton Avenue
- Blackstone Avenue / McKinley Avenue
- Blackstone Avenue / Olive Avenue
- Blackstone Avenue / Highway -180 WB Ramps
- Abby Street/Olive Avenue
- Abby Street/ Highway -180 EB Ramps

Roadway Segments

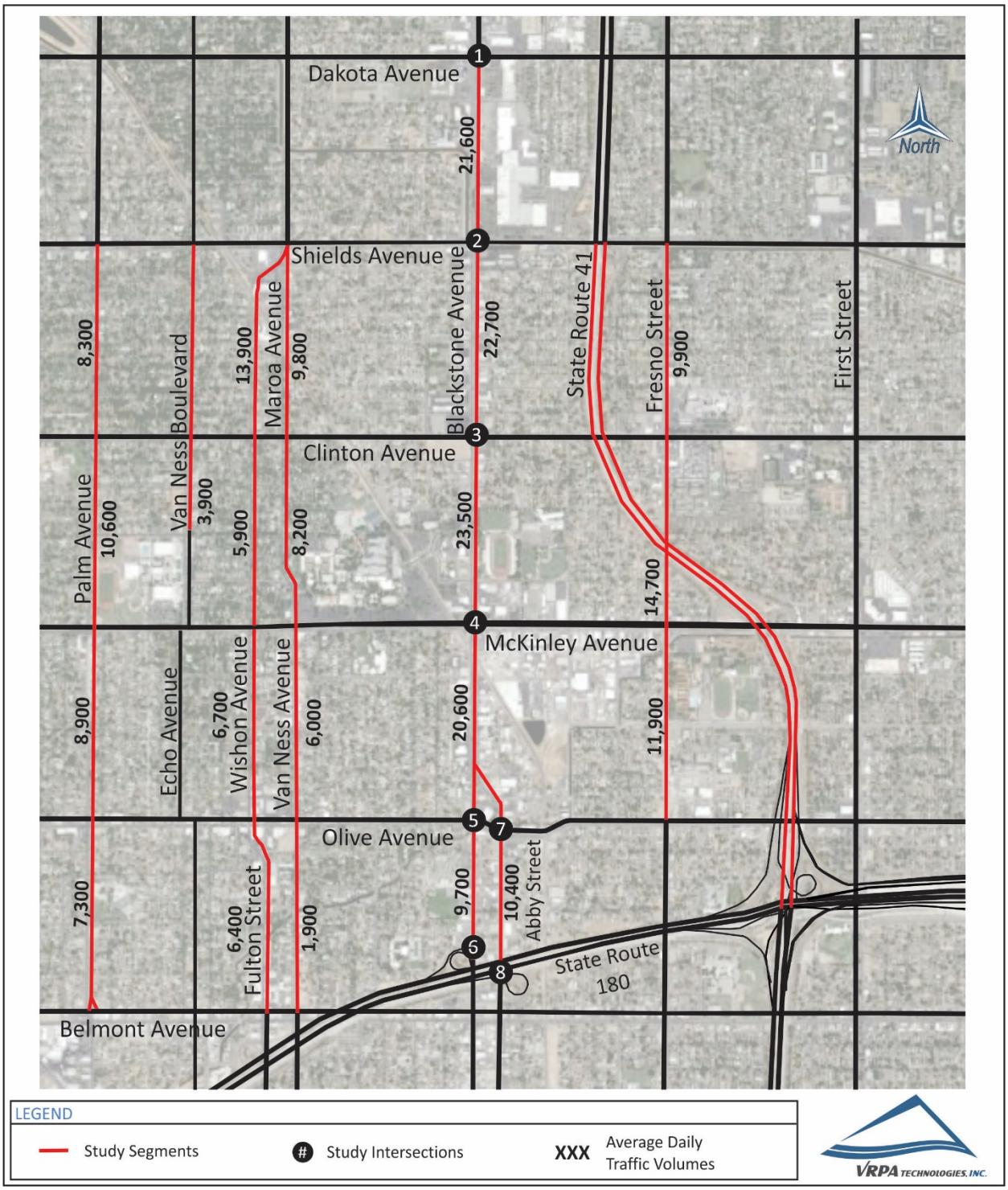
- Palm Avenue between Belmont Avenue and Shields Avenue
- Van Ness Boulevard between South of Clinton Avenue and Shields Avenue
- Fulton Street between Belmont Avenue and Wishon Avenue
- Wishon Avenue between Fulton Street and Shields Avenue
- Van Ness Avenue between Belmont Avenue and Shields Avenue
- Blackstone Avenue between I-180 WB Ramps and Dakota Avenue
- Abby Street between I-180 EB Ramps and Blackstone Avenue
- Fresno Street between I-180 WB Ramps and Shields Avenue

Existing Traffic Conditions

Figures 3.25 through ***3.27*** provide various results from the existing conditions (2018) assessment of street and intersection characteristics conducted for this project.

Existing Average Daily Traffic Volumes

Figure 3.25 provides an overview of the Average Daily Traffic (ADT) volumes for each of the study segments in the project area.



Figures 3.25: Existing Average Daily Traffic Volumes

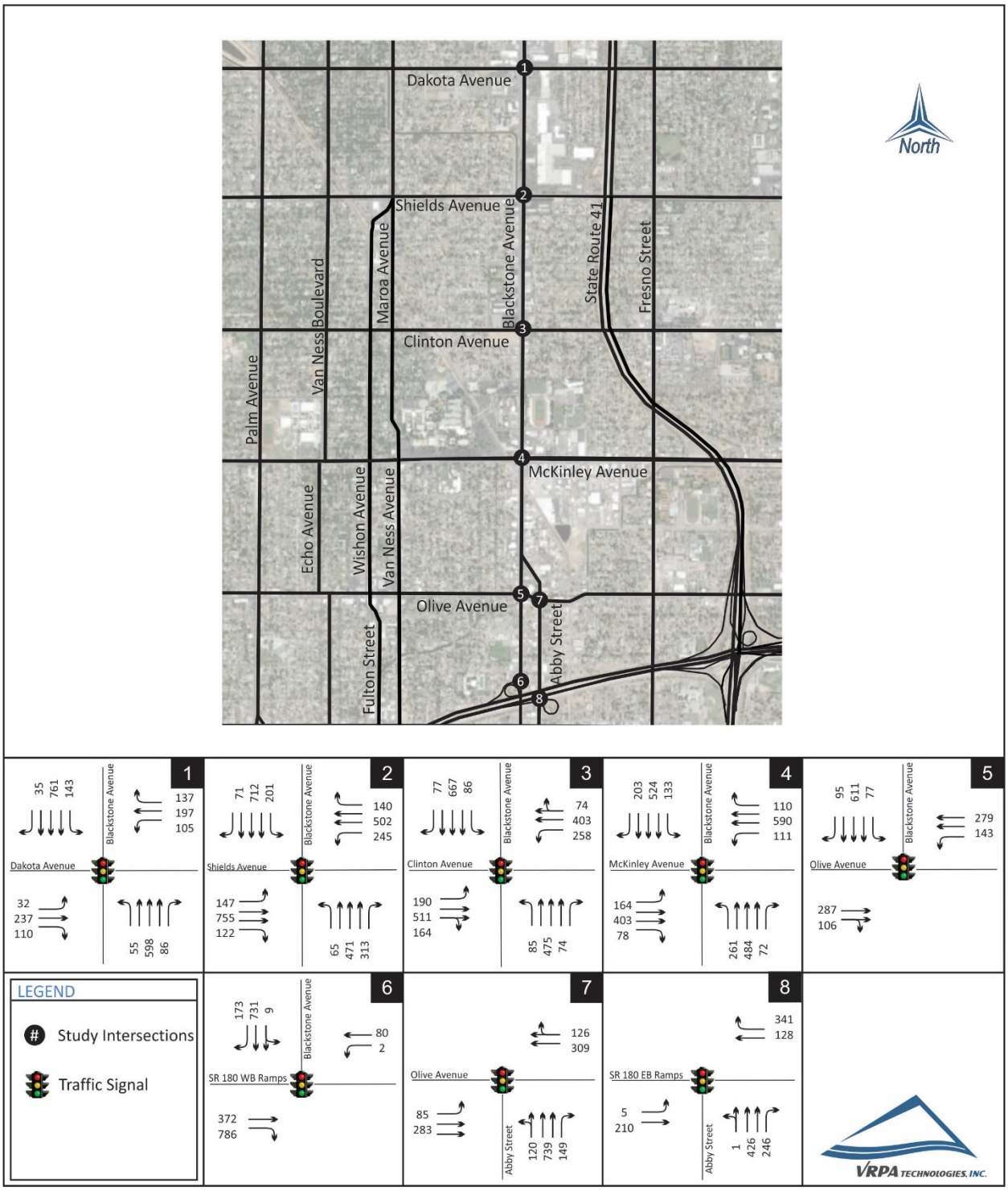


Figure 3.26: Existing AM Peak Traffic (VRPA)

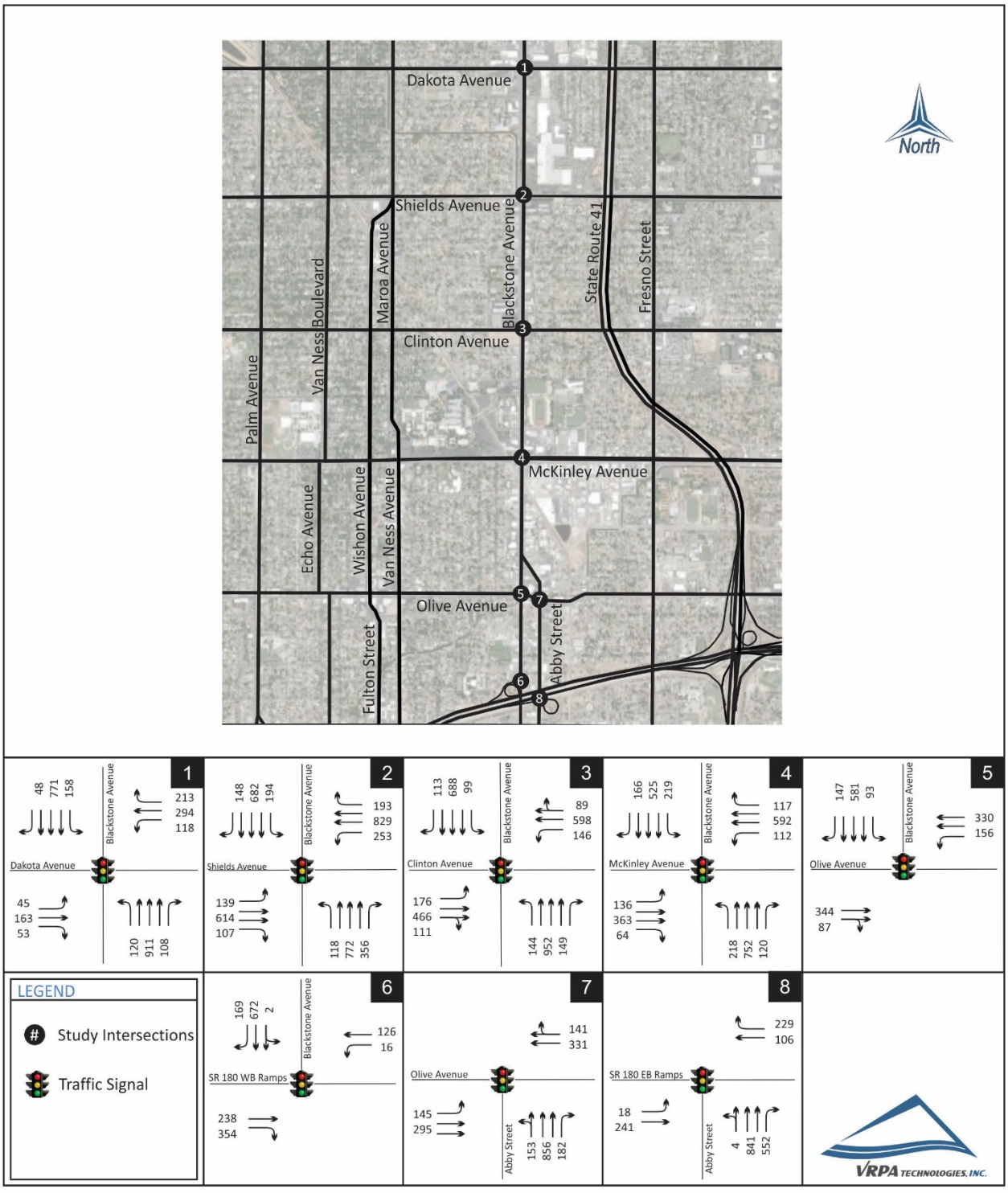


Figure 3.27: Existing PM Peak Traffic (VRPA)

Existing AM and PM Turning Movements

Figures 3.26 and ***3.27*** show existing AM and PM peak hour turning movements at key study area intersections. At each of these intersections, left turn movements from Blackstone Avenue onto the cross streets are greater than 100 vehicles per hour in the AM peak hour, the PM peak hour, or both. This is considered to be an indication that these turning movements need to be maintained in any redesign of Blackstone Avenue. Two of these major cross streets, Shields Avenue and McKinley Avenue, are also designated truck routes.

At other intersections along Blackstone Avenue, consideration could be given to removing or shortening left turn lanes and prohibiting left turns in order to allow right-of-way space currently occupied by these turn lanes to be used for another purpose. This could be considered on a case-by-case basis where acceptable alternate routes exist.

Intersection Level of Service

Table 3.1 indicates that all of the key study area intersections operate at Level of Service (LOS) D or better in the AM and PM peak hours.

Table 3.1 Intersection Capacity Level of Service

INTERSECTION	CONTROL	TARGET LOS	PEAK HOUR	EXISTING	
				DELAY	LOS
1. Blackstone Avenue / Dakota Avenue	Signalized	D	AM	21.8	C
			PM	23.1	C
2. Blackstone Avenue / Shields Avenue	Signalized	D	AM	43.2	D
			PM	41.6	D
3. Blackstone Avenue / Clinton Avenue	Signalized	D	AM	43.4	D
			PM	32.0	C
4. Blackstone Avenue / McKinley Avenue	Signalized	D	AM	36.3	D
			PM	30.8	C
5. Blackstone Avenue / Olive Avenue	Signalized	D	AM	16.8	B
			PM	16.9	B
6. Blackstone Avenue / SR 180 WB Ramps	Signalized	D	AM	14.6	B
			PM	13.2	B
7. Abby Street / Olive Avenue	Signalized	D	AM	17.2	B
			PM	18.5	B
8. Abby Street / SR 180 EB Ramps	Signalized	D	AM	10.4	B
			PM	11.7	B

DELAY is measured in seconds

LOS = Level of Service

For signalized intersections, delay results show the average for the entire intersection.

Existing Roadway Capacity on Blackstone/Abby and Parallel Corridors

Additional information for the development of multimodal concepts that involve a potential reduction in the number of travel lanes can be gleaned from analyzing the roadway capacity on Blackstone Avenue and parallel surface streets. For this analysis of the roadway capacity on Blackstone Avenue and the parallel north-south streets, the 2018 Average Daily Traffic (ADT) on each roadway was compared to its daily carrying capacity. The performance criteria used for evaluating volumes and capacities on the road and highway system for this study were estimated using the Modified HCM-Based LOS Tables (Florida Tables), which are commonly utilized in the central valley. The tables consider the capacity of individual road and highway segments based on numerous roadway variables (design speed, passing opportunities, signalized intersections per mile, number of lanes, saturation flow, etc.). The results are shown in ***Table 3.2***. All roadways in the study area are below capacity, including Blackstone Avenue. The total excess capacity in the corridor can be determined by subtracting the total ADT from the total available capacity and the resulting excess capacity is 87,000 vehicles per day considering 2018 ADT. In order to take advantage of this excess capacity for the design of Blackstone Avenue (and presumably a reduced number of through lanes), it would have to be assumed that drivers will divert to parallel streets as the reduced number of lanes lead to increased delays and slower speeds.

Results of the segment analysis along Blackstone Avenue are reflected in ***Table 3.3***. Results of the analysis show that all of the roadway segments along Blackstone Avenue are currently operating at acceptable levels of service.

Potential Lane Reductions Considering Near-Term Improvements

The Blackstone Avenue corridor currently provides three (3) travel lanes in both the northbound and southbound direction. The existing traffic volumes discussed previously were utilized to determine the intersection and roadway performance along Blackstone Avenue with the removal of one (1) travel lane or considering two (2) travel lanes in the northbound and southbound direction.

Intersection Level of Service

Table 3.4 indicates that all of the key study area intersections operate at Level of Service (LOS) D or better in the AM and PM peak hours considering the removal of one (1) travel lane along Blackstone Avenue.

Roadway Capacity on Blackstone/Abby and Parallel Corridors

An analysis of the roadway capacity on Blackstone Avenue with the removal of one (1) travel lane and the parallel north-south streets considering the 2018 ADT was compared to its daily carrying capacity. The results are shown in ***Table 3.5***. All roadways in the study area are below capacity, including Blackstone Avenue. The resulting excess capacity is 70,000 vehicles per day.

Results of the segment analysis considering the removal of one (1) travel lane along Blackstone Avenue is reflected in ***Table 3.6***. Results of the analysis show that all of the roadway segments along Blackstone Avenue are projected to operate at acceptable levels of service with the removal of one (1) travel lane.

Table 3.2 ADT Carrying Capacity

Roadway	2018 Average Daily Traffic	Number of Through Lanes	Daily Capacity at LOS E	Percent of Capacity Utilized
Palm Avenue	10,600	4	32,319	32.8%
Van Ness Boulevard	3,900	2	17,766	22.0%
Wishon Avenue	5,900	2*	10,152	58.1%
Maroa Avenue	8,200	2*	10,152	80.8%
Blackstone Avenue	23,500	6	51,300	45.8%
Fresno Street	14,700	4	32,319	45.5%
Total	**66,800**		**154,008**	**43.4%**

* One-Way Street

Table 3.3 ADT Level of Service Operations

STREET SEGMENT	SEGMENT DESCRIPTION	EXISTING	
		VOLUME	LOS
Blackstone Avenue			
Dakota Avenue to Shields Avenue	6 Lanes Divided	21,600	C
Shields Avenue to Clinton Avenue	6 Lanes Divided	22,700	C
Clinton Avenue to McKinley Avenue	6 Lanes Divided	23,500	C
McKinley Avenue to Olive Avenue	6 Lanes Divided	20,600	C
Olive Avenue to SR 180 EB Ramps*	3 Lanes Divided	9,700	C
Abby Street			
Olive Avenue to SR 180 EB Ramps*	3 Lanes Divided	10,400	C

LOS = Level of Service

* One-Way Street

Table 3.4 Intersection Capacity Level of Service with Lane Reduction

INTERSECTION	CONTROL	TARGET LOS	PEAK HOUR	EXISTING		EXISTING (WITH LANE REDUCTION)	
				DELAY	LOS	DELAY	LOS
1. Blackstone Avenue / Dakota Avenue	Signalized	D	AM	21.8	C	24.4	C
			PM	23.1	C	26.3	C
2. Blackstone Avenue / Shields Avenue	Signalized	D	AM	43.2	D	44.7	D
			PM	41.6	D	42.8	D
3. Blackstone Avenue / Clinton Avenue	Signalized	D	AM	43.4	D	49.4	D
			PM	32.0	C	38.1	D
4. Blackstone Avenue / McKinley Avenue	Signalized	D	AM	36.3	D	37.7	D
			PM	30.8	C	36.4	D
5. Blackstone Avenue / Olive Avenue	Signalized	D	AM	16.8	B	17.3	B
			PM	16.9	B	17.3	B
6. Blackstone Avenue / SR 180 WB Ramps	Signalized	D	AM	14.6	B	14.6	B
			PM	13.2	B	13.2	B
7. Abby Street / Olive Avenue	Signalized	D	AM	17.2	B	18.5	B
			PM	18.5	B	20.7	C
8. Abby Street / SR 180 EB Ramps	Signalized	D	AM	10.4	B	10.6	B
			PM	11.7	B	12.2	B

DELAY is measured in seconds

LOS = Level of Service

For signalized intersections, delay results show the average for the entire intersection.

Table 3.5 ADT Carrying Capacity with Lane Reduction

Roadway	2018 Average Daily Traffic	Number of Through Lanes	Daily Capacity at LOS E	Percent of Capacity Utilized
Palm Avenue	10,600	4	32,319	32.8%
Van Ness Boulevard	3,900	2	17,766	22.0%
Wishon Avenue	5,900	2*	10,152	58.1%
Maroa Avenue	8,200	2*	10,152	80.8%
Blackstone Avenue	23,500	4	34,020	69.1%
Fresno Street	14,700	4	32,319	45.5%
Total	**66,800**		**136,728**	**48.9%**

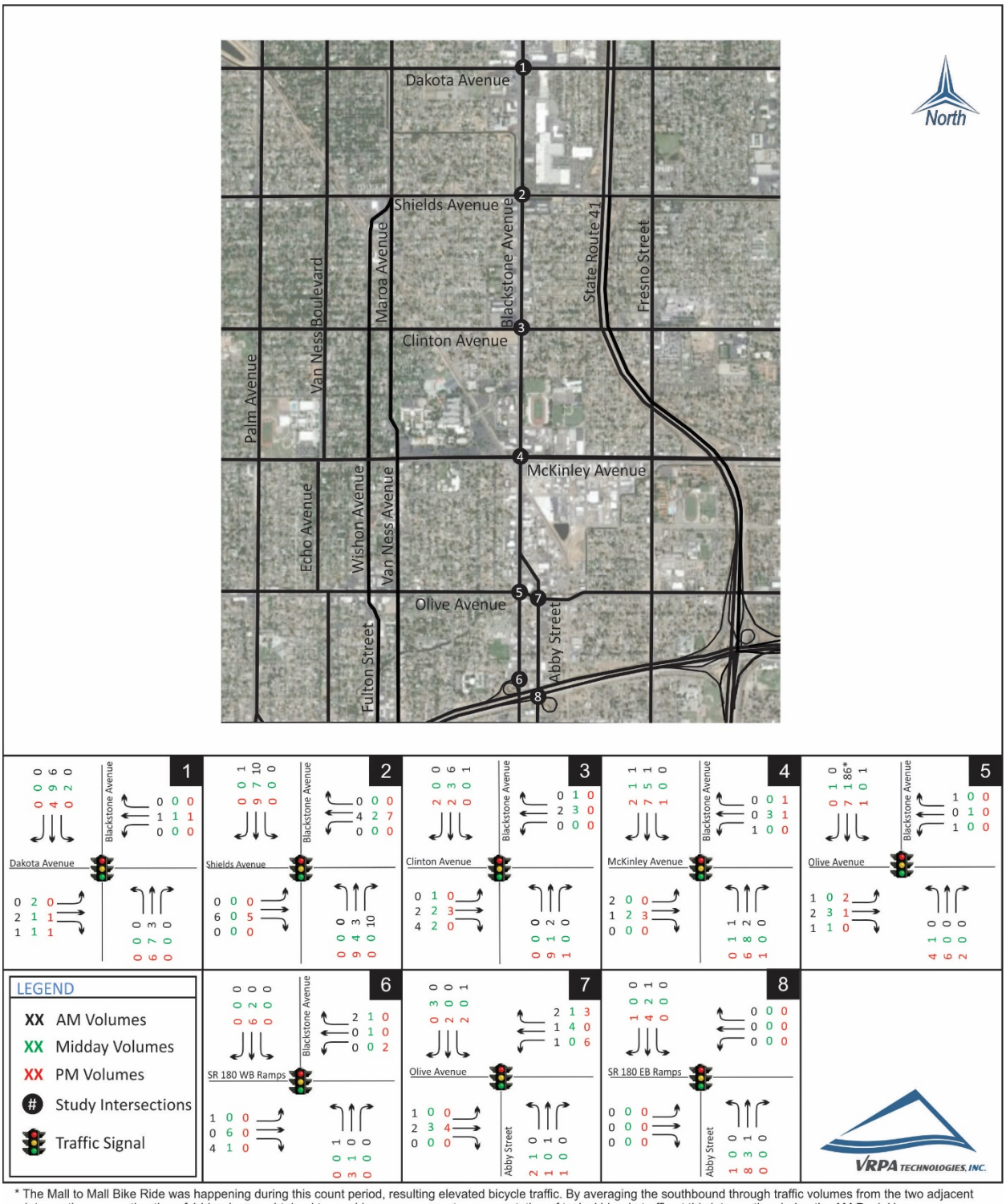
* One-Way Street

Table 3.6 ADT Level of Service Operations with Lane Reduction

STREET SEGMENT	SEGMENT DESCRIPTION	EXISTING		SEGMENT DESCRIPTION	EXISTING (WITH LANE REDUCTION)	
		VOLUME	LOS		VOLUME	LOS
Blackstone Avenue						
Dakota Avenue to Shields Avenue	6 Lanes Divided	21,600	C	4 Lanes Divided	21,600	C
Shields Avenue to Clinton Avenue	6 Lanes Divided	22,700	C	4 Lanes Divided	22,700	C
Clinton Avenue to McKinley Avenue	6 Lanes Divided	23,500	C	4 Lanes Divided	23,500	C
McKinley Avenue to Olive Avenue	6 Lanes Divided	20,600	C	4 Lanes Divided	20,600	C
Olive Avenue to SR 180 EB Ramps*	3 Lanes Divided	9,700	C	2 Lanes Divided	9,700	C
Abby Street						
Olive Avenue to SR 180 EB Ramps*	3 Lanes Divided	10,400	C	2 Lanes Divided	10,400	C

LOS = Level of Service

* One-Way Street



* The Mall to Mall Bike Ride was happening during this count period, resulting elevated bicycle traffic. By averaging the southbound through traffic volumes from the two adjacent intersections, an estimation of 1 bicycle was obtained to provide a more accurate representation of typical bicycle traffic at this intersection during the AM Peak Hour.

Figure 3.28: Existing Bicycle Intersection Movements

Existing Bicycle and Pedestrian Conditions

Bicycle Conditions

The potential need for better accommodating bicyclists along the Corridor is underscored by the results of the AM and PM peak bicycle traffic counts that were conducted for this project in the Month of May 2018 (**Figure 3.28**). The numbers demonstrate that even in spite of the Corridor's high Bicycle Level of Stress rating ("strong and fearless") a number of people choose to or need to travel by bicycle. The current unsafe bicycling conditions are also reflected in the overview of locations of accidents along Blackstone Avenue/Abby Street that have involved bicyclists (see Figure 2.10 - Existing Conditions Report). Figure 2.10 shows accidents that have involved bicyclists. Due to the relative low number of accidents that have involved bicyclists, no clear pattern is discernable that would point to a specific locations and conditions there that cause the accidents that have occurred.

However, the results of the bicycle traffic counts point to the need of including options for the safe accommodation of bicyclist in the range of design concepts that will be developed in the next phase of the project. Such improvements would not only be expected to make bicycle travel safer for bicyclists that already travel the Corridor but also to increase the number of cyclists along the Corridor. Some of that increase could be expected to occur due to bicyclists diverting from less convenient or direct routes and some of the increase could occur due to bicyclists who would switch from another mode if safe bicycle facilities were available. Based on the predominant lack of existing or planned nearby parallel bicycle facilities (see Figure 2.14 – Existing Conditions Report), it does not appear that bicycle accommodations on Blackstone Avenue/Abby Street would create a duplication of convenient bicycle routes that are available on other streets.

Pedestrian Conditions

Figure 3.29 illustrates the overall levels of existing pedestrian traffic in the AM and PM peak hours at the study intersections. It indicates the presence of a substantial amount of pedestrian traffic on the Corridor, especially in the area from Dakota Avenue to Olive Avenue.

Figure 2.11 of the Existing Conditions Report shows accidents that have involved pedestrians. Due to the relative low number of accidents that have involved pedestrians, no clear pattern is discernable that would point to a specific locations and conditions there that cause the accidents that have occurred.

As in the case of bicycling, improvements to the safety and comfort of pedestrians would be expected to provide better service to the existing pedestrians as well as attract additional pedestrian trips through a change in the mode of travel, particularly for very short trips. In addition, it is expected that improvements to pedestrian facilities would support travel by transit, since walking to and from bus stops at the origin and destination end of travel are key consideration in trips made by transit.

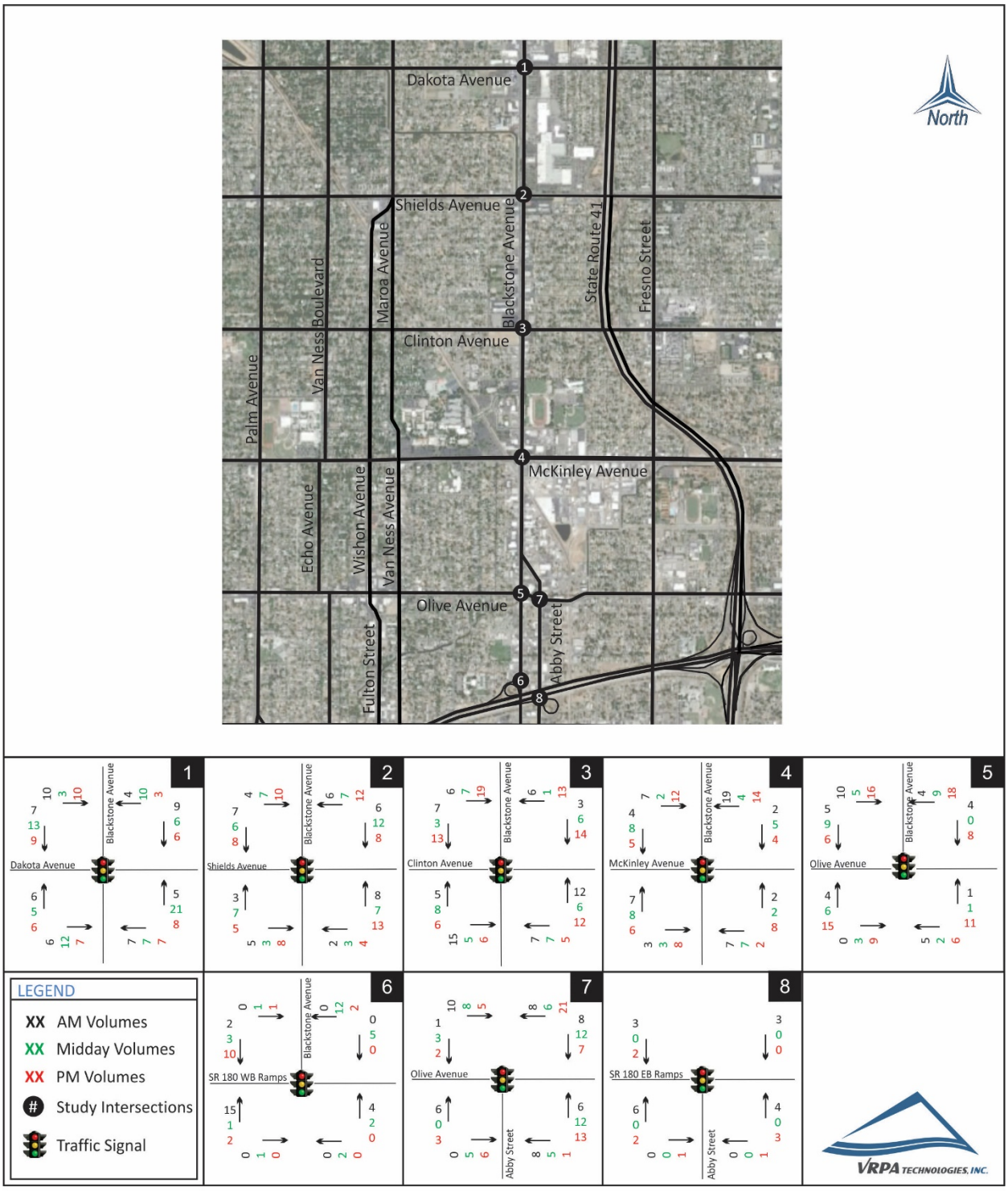


Figure 3.29: Pedestrian Intersection Movements

Future Year 2040 Traffic Conditions

The impacts of the removal of one (1) travel lane along the Blackstone Avenue corridor were analyzed considering future traffic conditions in the year 2040. The levels of traffic expected in the Year 2040 relate to the cumulative effect of traffic increases resulting from the implementation of the General Plans of local agencies, including the City of Fresno and Fresno County. Traffic conditions in the Year 2040 were estimated by applying a growth rate of 1.5% per year to the existing traffic volumes. A comparison of the Fresno Council of Governments (Fresno COG) base year and future year travel model showed that the growth in the study area is approximately 1% per year. However, it was conservatively estimated that growth along the corridor is more consistent with 1.5% per year. The resulting traffic is shown in *Figures 3.30* through *3.32*.

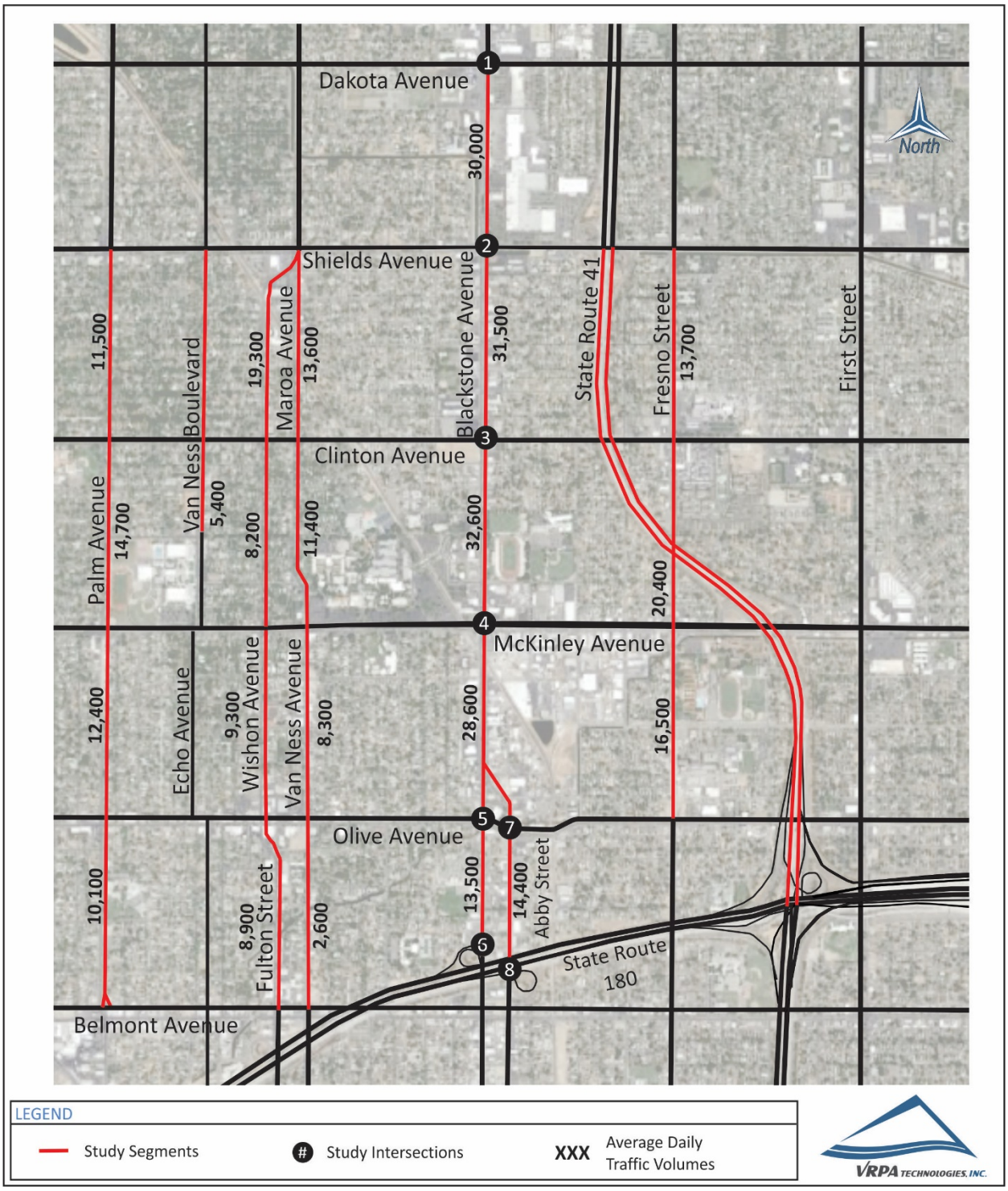


Figure 3.30: Future Year 2040 Average Daily Traffic Volumes

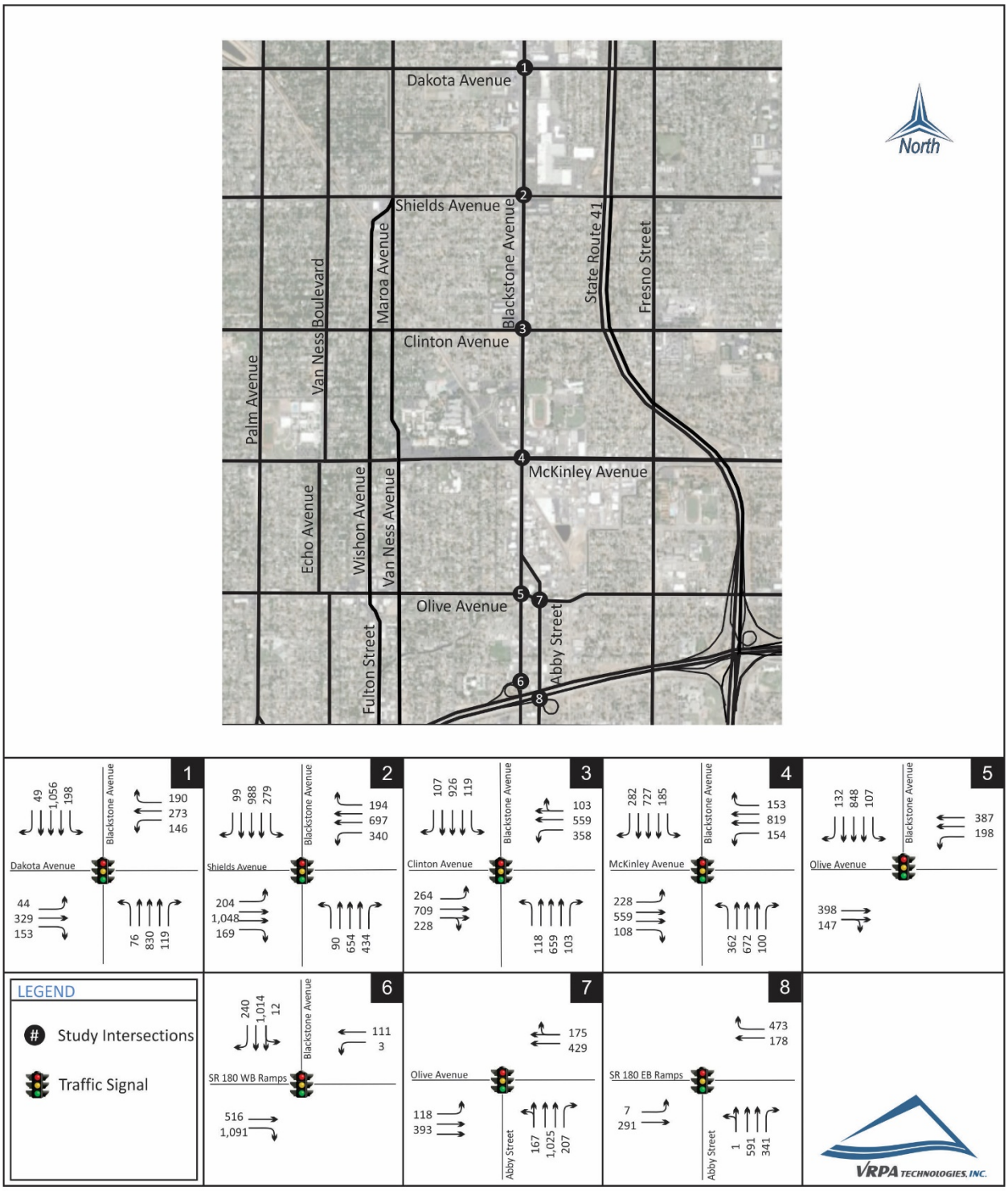


Figure 3.31: Future Year 2040 AM Peak Hour Traffic

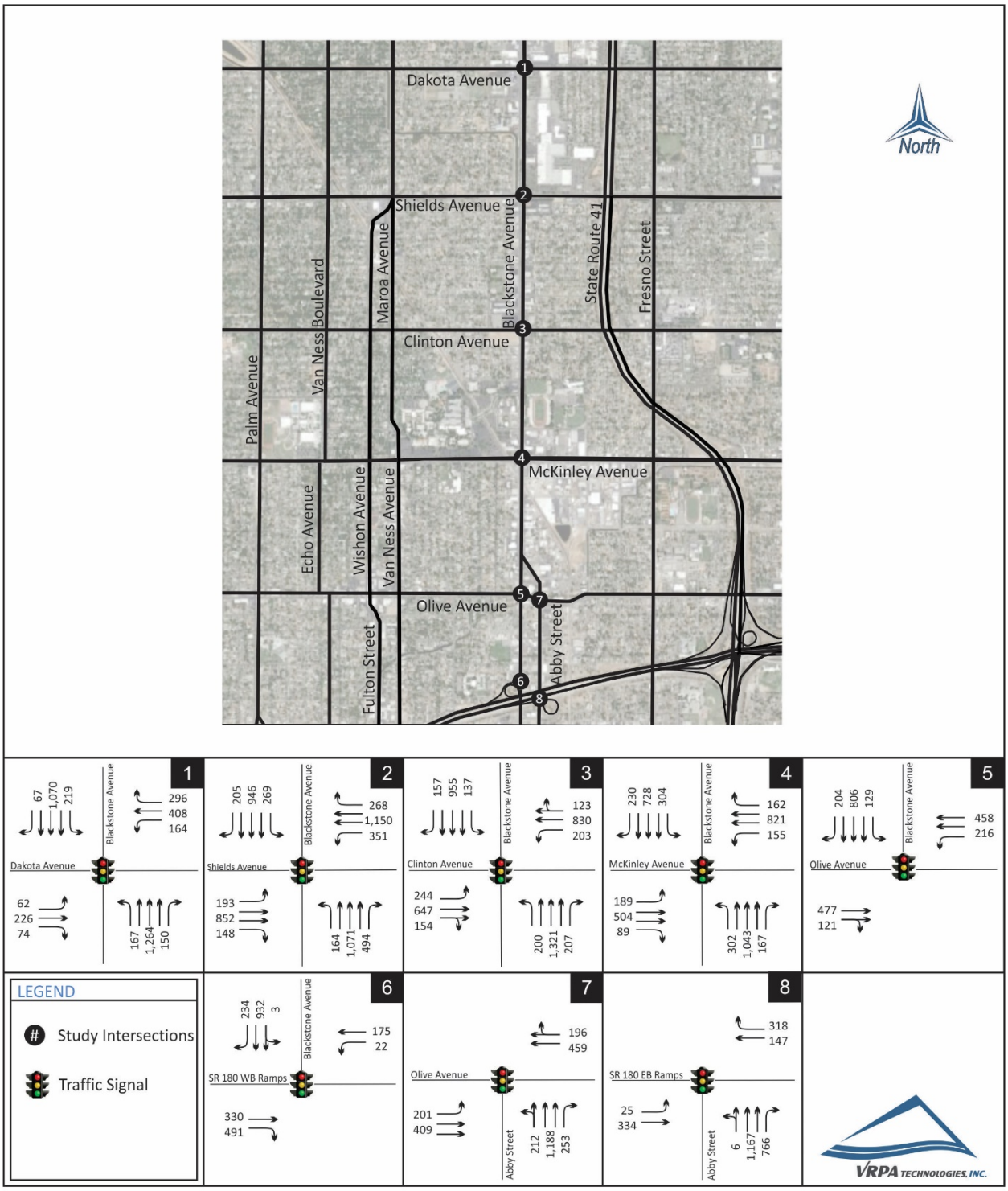


Figure 3.32: Future Year 2040 PM Peak Hour Traffic

Intersection Level of Service

Table 3.7 indicates that three (3) of the study intersections, as shown below, will operate at unacceptable levels of service considering the current roadway configuration along Blackstone Avenue.

- *Blackstone Avenue / Shields Avenue*
- *Blackstone Avenue / Clinton Avenue*
- *Blackstone Avenue / McKinley Avenue*

Results of the analysis also show that three (3) of the study intersections, as shown below, will operate at unacceptable levels of service considering the removal of one (1) travel lane along the Blackstone Avenue corridor.

- *Blackstone Avenue / Shields Avenue*
- *Blackstone Avenue / Clinton Avenue*
- *Blackstone Avenue / McKinley Avenue*

It should be noted that the General Plan allows LOS F conditions along the Blackstone Avenue for purposes of promoting alternative modes of travel (walking, biking, transit, etc.). Policy number MT-1-m accepts LOS F conditions along Bus Rapid Transit (BRT) corridors if provisions are made to promote non-vehicular transportation and transit as part of a City-initiated project. This policy also seeks to give priority to pedestrians and transit over vehicle LOS.

Providing dedicated right turn lanes at the eastbound and westbound approach of the Blackstone Avenue and Clinton Avenue intersection would reduce the average delay by approximately 30 seconds.

Roadway Capacity on Blackstone/Abby and Parallel Corridors

An analysis of the roadway capacity on Blackstone Avenue with and without the removal of one (1) travel lane and the parallel north-south streets considering the Future Year 2040 ADT was compared to its daily carrying capacity. The results are shown in *Tables 3.8 and 3.9*. All roadways in the study area are below capacity, including Blackstone Avenue. The resulting excess capacity is 61,300 vehicles per day considering the Blackstone Avenue's roadway configuration and 44,000 vehicles per day considering the removal of one (1) travel lane.

Results of the segment analysis with and without the removal of one (1) travel lane along Blackstone Avenue are reflected in Table 3.10. Results of the analysis show that all of the roadway segments along Blackstone Avenue are projected to operate at acceptable levels of service with the removal of one (1) travel lane with the exception of the roadway segment between Clinton Avenue and McKinley Avenue. It should be noted that the roadway segment will achieve acceptable levels of service through the year 2035. Potential shifts to other corridors may occur as the level of service along the segment begins to deteriorate.

Table 3.7 Future Year 2040 Intersection Capacity Level of Service

INTERSECTION	CONTROL	TARGET LOS	PEAK HOUR	FUTURE YEAR 2040		FUTURE YEAR 2040 (WITH LANE REDUCTION)	
				DELAY	LOS	DELAY	LOS
1. Blackstone Avenue / Dakota Avenue	Signalized	D	AM	32.0	C	45.5	D
			PM	38.1	D	51.2	D
2. Blackstone Avenue / Shields Avenue	Signalized	D	AM	**99.8**	**F**	**104.4**	**F**
			PM	**88.4**	**F**	**106.6**	**F**
3. Blackstone Avenue / Clinton Avenue	Signalized	D	AM	**82.2**	**F**	**112.5**	**F**
			PM	**61.6**	**E**	**90.9**	**F**
4. Blackstone Avenue / McKinley Avenue	Signalized	D	AM	**68.2**	**E**	**77.4**	**E**
			PM	**56.0**	**E**	**72.4**	**E**
5. Blackstone Avenue / Olive Avenue	Signalized	D	AM	23.4	C	24.6	C
			PM	23.3	C	24.3	C
6. Blackstone Avenue / SR 180 WB Ramps	Signalized	D	AM	22.8	C	22.8	C
			PM	18.2	B	18.2	B
7. Abby Street / Olive Avenue	Signalized	D	AM	25.6	C	29.8	C
			PM	30.2	C	41.3	D
8. Abby Street / SR 180 EB Ramps	Signalized	D	AM	12.9	B	13.3	B
			PM	20.1	C	21.4	C

DELAY is measured in seconds

LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded

For signalized intersections, delay results show the average for the entire intersection.

Table 3.8 Future Year 2040 ADT Carrying Capacity

Roadway	2040 Average Daily Traffic[1]	Number of Through Lanes	Daily Capacity at LOS E	Percent of Capacity Utilized
Palm Avenue	14,700	4	32,319	45.5%
Van Ness Boulevard	5,400	2	17,766	30.4%
Wishon Avenue	8,200	2 *	10,152	80.8%
Maroa Avenue	11,400	2 *	10,152	112.3%
Blackstone Avenue	32,600	6	51,300	63.5%
Fresno Street	20,400	4	32,319	63.1%
Total	**92,700**		**154,008**	**60.2%**

(1) Based on Fresno COG 2042 RTP/SCS model, subject to minimum growth rate of 1.5% per year.

* One-Way Street

Table 3.9 Future Year 2040 ADT Carrying Capacity with Lane Reduction

Roadway	2040 Average Daily Traffic[1]	Number of Through Lanes	Daily Capacity at LOS E	Percent of Capacity Utilized
Palm Avenue	14,700	4	32,319	45.5%
Van Ness Boulevard	5,400	2	17,766	30.4%
Wishon Avenue	8,200	2 *	10,152	80.8%
Maroa Avenue	11,400	2 *	10,152	112.3%
Blackstone Avenue	32,600	4	34,020	95.8%
Fresno Street	20,400	4	32,319	63.1%
Total	**92,700**		**136,728**	**67.8%**

(1) Based on Fresno COG 2042 RTP/SCS model, subject to minimum growth rate of 1.5% per year.
* One-Way Street

Table 3.10 Future Year 2040 ADT Level of Service Operations

STREET SEGMENT	SEGMENT DESCRIPTION	FUTURE YEAR 2040		SEGMENT DESCRIPTION	FUTURE YEAR 2040 (WITH LANE REDUCTION)	
		VOLUME	LOS		VOLUME	LOS
Blackstone Avenue						
Dakota Avenue to Shields Avenue	6 Lanes Divided	30,000	C	4 Lanes Divided	30,000	C
Shields Avenue to Clinton Avenue	6 Lanes Divided	31,500	C	4 Lanes Divided	31,500	D
Clinton Avenue to McKinley Avenue	6 Lanes Divided	32,600	C	4 Lanes Divided	**32,600**	**E**
McKinley Avenue to Olive Avenue	6 Lanes Divided	28,600	C	4 Lanes Divided	28,600	D
Olive Avenue to SR 180 EB Ramps*	3 Lanes Divided	13,500	C	2 Lanes Divided	13,500	C
Abby Street						
Olive Avenue to SR 180 EB Ramps*	3 Lanes Divided	14,400	C	2 Lanes Divided	14,400	C

LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded
* One-Way Street

Additional Considerations

The City of Fresno's Mobility and Transportation section of the currently adopted General Plan includes objectives and policies for all modes of travel. Specifically, the General Plan foresees a more balanced transportation system that serves all modes of transportation including public transit, bicyclists, and pedestrians. A comprehensive multi-modal system will provide mobility for all community members as well as improve air quality and reduce greenhouse emissions.

Generally, when analyzing street and intersection capacities, LOS methodologies related to the automobile are applied. These LOS standards are applied by transportation agencies to quantitatively assess a street and highway system's performance. Various levels of service, ranging from LOS "A" to "F", relate to the amounts of average delay for a vehicle at signalized and unsignalized intersections as well as roadway segments. However, the City of Fresno desires a transportation system that performs well for all modes of travel and desires the implementation of a multi-modal LOS standard that requires the consideration of all modes when evaluating traffic congestion. A multi-modal LOS standard assists in the development of concentrated land uses by allowing vehicle congestion if walking, biking, and transit systems operate efficiently.

Policy numbers MT-1-g, MT-1-k, and MT-1-m are applicable to the South Blackstone Avenue Smart Mobility Plan and should be implemented in accordance with City of Fresno guidelines. Despite projected LOS F conditions along portions of the Blackstone Avenue corridor with the removal of one (1) travel lane in each direction, the development of non-transportation improvements will be beneficial to pedestrians, bicyclist, and public transit in addition to improved air quality and reduction of greenhouse gas emissions.

Consideration of Roundabouts along the Corridor

Consideration was given to the implementation of roundabouts at various locations along the Blackstone Avenue corridor. The existing and future year traffic volumes along the corridor were utilized in determining the viability of roundabouts along the corridor. Dual lane roundabouts would be required along the corridor based upon the peak hour traffic volumes at study intersections.

Dual lane roundabouts are approximately 150' to 300' in diameter. This diameter not only allows for two circular lanes to accommodate traffic demand, but also allows trucks and buses to navigate the roundabout. Incorporating the 150' to 300' diameter footprint for a dual lane roundabout at intersections along the corridor is likely infeasible given the presence of commercial development located adjacent to the corridor and the significant acquisition cost that would be incurred to obtain additional right-of-way. However, further study and a feasibility analysis may be warranted to determine if a roundabout could be incorporated at the confluence of the Blackstone Avenue-Abby Street couplet at Hedges Avenue. A roundabout at this particular location that is carefully designed to safely accommodate pedestrians and bicyclists may be able to better address the geometric and signalization issues that currently make this location challenging to maneuver for pedestrian, bicyclists, and drivers alike.

3.4 Design Concept Options by Corridor Segment

Corridor Segment – North of Shields Avenue

The half-mile long North of Shields segment of the Blackstone Avenue/Abby Streets corridor stretches from Dakota Avenue in the north to Shields Avenue in the south and is located in the Shields/Manchester Activity Center. The segment is distinctly different from other parts of the Corridor due to its land use context and right-of-way conditions. The segment's context is characterized by large-scale regional retail uses that include the Manchester Center, Sears, and Manchester North on the east side of the street as well as a mix of hotel and commercial uses on the west side. Other unique features located along this segment include the Manchester Center Transit Center on the east side and the Herndon Canal, which fronts onto the west side of Blackstone between Dayton and Shields Avenues.

The right-of-way width of Blackstone Avenue north of Shields Avenue ranges between 122 and 128 feet, which is 12 to 18 feet wider than the typical right-of-way width south of Shields Avenue. The cross sections of typical existing conditions (*Figures 3.31 - 3.32*) for the sub-segments north and south of Dayton Avenue include a continuous northbound right-turn lane for traffic turning into the parking lots located along the eastern side of the road. There is no parking lane on the east-side of the street and the parking lane on the west side is largely unused. A median of varying width and landscaped with trees and grasses, separates the two directions of travel.

Multimodal Long-term Improvements

Table 3.11 provides a summary of the envisioned long-term improvements, which include the introduction of a two-way separated bikeway on the west side of the street, reconfigured or widened sidewalks, and a widened landscape median. Space for these improvements is gained by reducing the number of travel lanes in each direction from three to two and by removing the parking lane on the west side of the street.

The envisioned long-term improvements between Dakota and Dayton Avenues and Dayton and Shields Avenue are illustrated in the conceptual cross-sections of *Figures 3.31 & 3.32*. The key difference between the two sub-segments is the adjacency of the Herndon Canal along the westside of Blackstone between Dayton and Shields. Beyond the pedestrian and streetscape treatments along the canal, both sub-segments have similar conceptual cross-section improvements.

Based on the desire to ensure flexibility in the future design of Blackstone Avenue and basing the results on outcomes of testing and further assessing the reduced number of travel lanes, the Strategy includes two potential approaches to the recommended long-term improvements:

Option 1: Landscaped Medians and Buffers: Is based on the assumption that the feasibility of reducing the number of travel lanes in each direction is confirmed by the testing and assessment of recommended near-term improvements. The option creates a permanent 16-foot two-way separated bikeway with 11-foot wide sidewalks that are separated from adjacent travel lanes by landscape buffers planted with trees. 10-foot wide tree-lined medians adjacent to turn lanes and wider where turn lanes are not present, would provide a refuge for pedestrians and bicyclists crossing the road. (see *Figures 3.31 & 3.32*)

Option 2 -Flexible Parking/Transit-only Lanes: This option is based on the assumption that further study and/or a Pilot Project do not confirm the feasibility of reducing the existing cross-section from three to two lanes in each direction. Under this concept, the right-turn lane on the east side would be converted into a combined through and right-turn lane when future traffic volumes exceed the

capacity of two travel lanes in each direction[22]. In the southbound direction, the illustrated 10-foot wide parking lane would be turned into a dedicated transit or mixed flow lane to increase roadway capacity in the future. Under Option 2, the width of the two-way separated bikeway is reduced to 13 feet, and the median width at intersections to 6 feet, which does not support the planting of shade trees. The width of landscaped areas on sidewalks would also be reduced. (see ***Figures 3.31 & 3.32***)

NOTE: The cross-sections for long-term improvements include the depiction of potential future (re)development on adjacent properties as envisioned by the City's General Plan.

Segment-Specific Pedestrian Improvements

Pedestrian improvements include the widening of paved sidewalk surfaces to account for the expected rise in the number of pedestrians that would frequent businesses located on the first floor of future development along the frontage of Blackstone Avenue. In order to accommodate the wider sidewalks, the existing landscape buffer would be reduced in width but be more heavily planted with shade trees and shrubs.

Segment-Specific Bicycle Improvements

The recommended bicycle improvements for this segment of Blackstone Avenue include the concept of locating a two-way separate bikeway on the west side of the street. While the introduction of a two-way separated bikeway would trigger the need for modifications to existing signals along this segment and the transitioning of cyclists to this two-way facility at the Blackstone/Dakota and Blackstone/Shields intersections, it also provides significant benefits, including:

1. A low stress facility for less experienced bicyclists that would otherwise have to negotiate the high frequency bus and vehicle entries into the Manchester Transit Center and shopping mall parking lots. The location on the west side of the street also takes advantage of the limited number of driveways located on the west side of Blackstone.
2. A convenient connection to the future Midtown Trail at the Blackstone/Shields intersection and the trail's envisioned continuation along the Herndon Canal on the west side of Blackstone Avenue.

The recommendation to consider a two-way separated bikeway during future planning and design phases for improvements between Dakota and Shields Avenues is also based on the assumptions that a future introduction of bicycle facilities on Blackstone Avenue north of Dakota Avenue is unlikely due to the increasing traffic volumes north of that intersection and that the Dakota Avenue intersection can be designed as a protected intersection (see ***Section 3.1***) in order to function as a safe transition point for cyclists from the east-west bike lanes located on Dakota Avenue to the proposed two-way separated bikeway on Blackstone south of Dakota.

If, however, it is determined during future planning and design phases that two one-way separated bikeways located on each side of the street are preferable over the recommended two-way approach, such a configuration can also be accommodated within the existing right-of-way.

[22] The operational feasibility of such a conversion requires further study if this option is considered.

Segment-Specific Intersection Improvements

Figure 3.11 identifies the intersection of Blackstone/Garland as a potential location for the future implementation of a traffic signal or pedestrian hybrid beacon (PHB). The feasibility of this signal improvements requires further study.

All signalized intersections should be designed to include bicycle and pedestrian improvements that are consistent with the best practices for protected intersections (see Corridor-wide Strategies). The incorporation of bicycle crossing features is of particular importance along this segment in order to create safe and comfortable connections between the two-way separated bikeway on the west side of Blackstone Avenue and existing and future destinations located on the east side.

At the Blackstone/Shields intersection, the long-term design should include the removal of recently installed cobble stone areas as these will no longer be needed when the convergence and interfacing of all sidewalks, crosswalks, and pedestrian and bicycle paths (Mid-town Trail) are accounted for under the envisioned long-term design.

Segment-Specific Streetscape Improvements

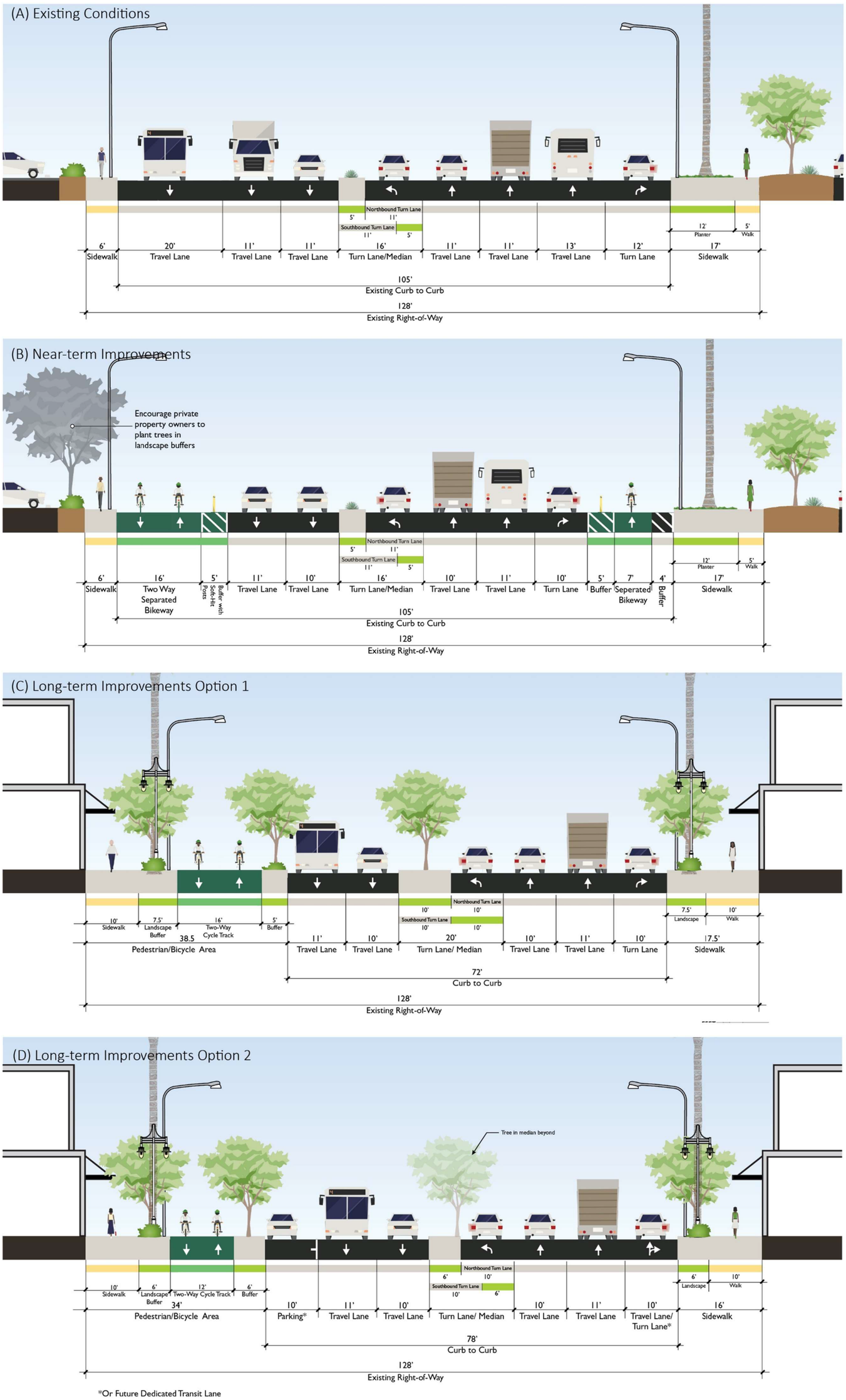
Recommended streetscape improvements along this segment include the implementation of corridor-wide streetscape strategies, such as the planting of shade trees along sidewalks and in medians wider than 8 feet, the use of banners to identify the Manchester/Shields Activity Center, and the installation of pedestrian-scale light fixtures (see Corridor-wide Strategies for more details).

Segment-specific recommendations for streetscape improvements include the supplemental planting of palm trees where there are wide gaps in the spacing of the existing rows of palms. The recommended planting of shade trees would occur between palm tree locations to enhance the buffer effect of the existing landscape strip between sidewalk and roadway and to provide shade to the sidewalk area.

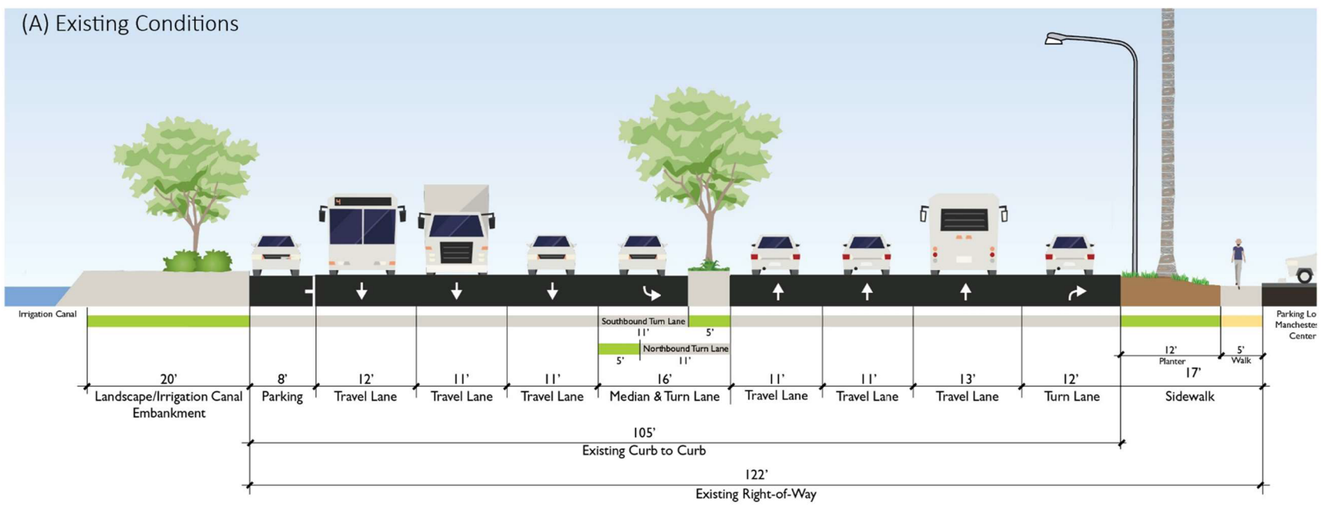
Where landscape strips buffer pedestrians from moving traffic in adjacent lanes, these buffer strips should be planted with draught-tolerant shrubs and grasses in order to increase their buffer function. Similarly, the two-way bikeway should be buffered from the adjacent sidewalk by a tree-lined landscape strip that also includes plantings of shrubs and grasses.

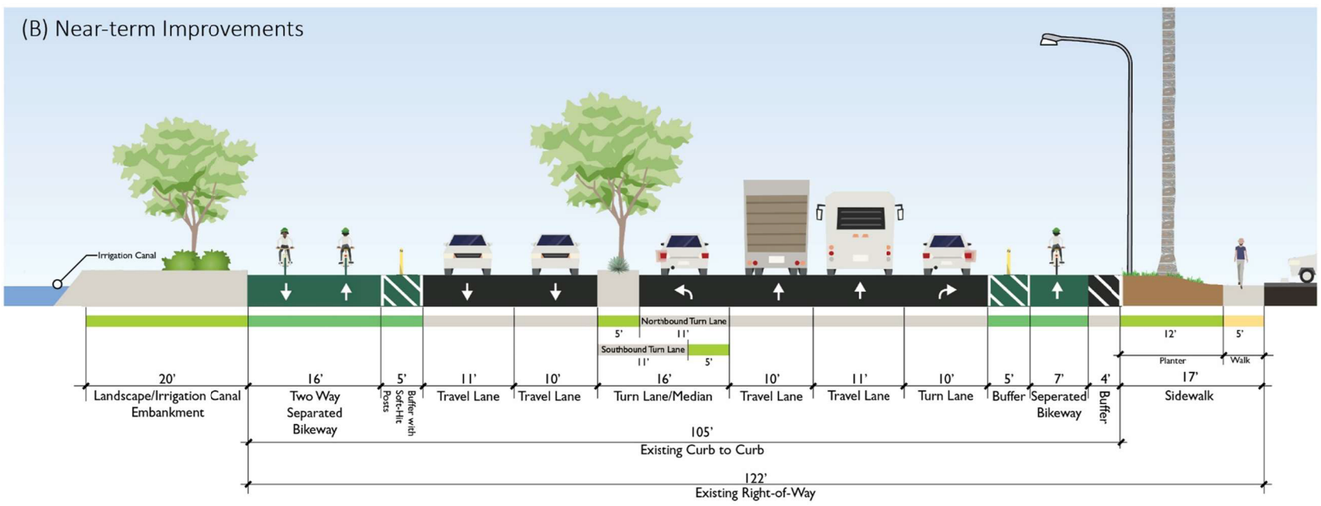
Where the Herndon Canal parallels the western edge of Blackstone Avenue, the space between the edges of the canal and the two-way bikeway, presents an opportunity for the design of a linear open space, located within the Fresno Irrigation District's right of way, that integrates the planned future extension Midtown Trail and the envisioned new sidewalk along this section of Blackstone Avenue. In the cross-sections, this is indicated by a double row of shade trees.

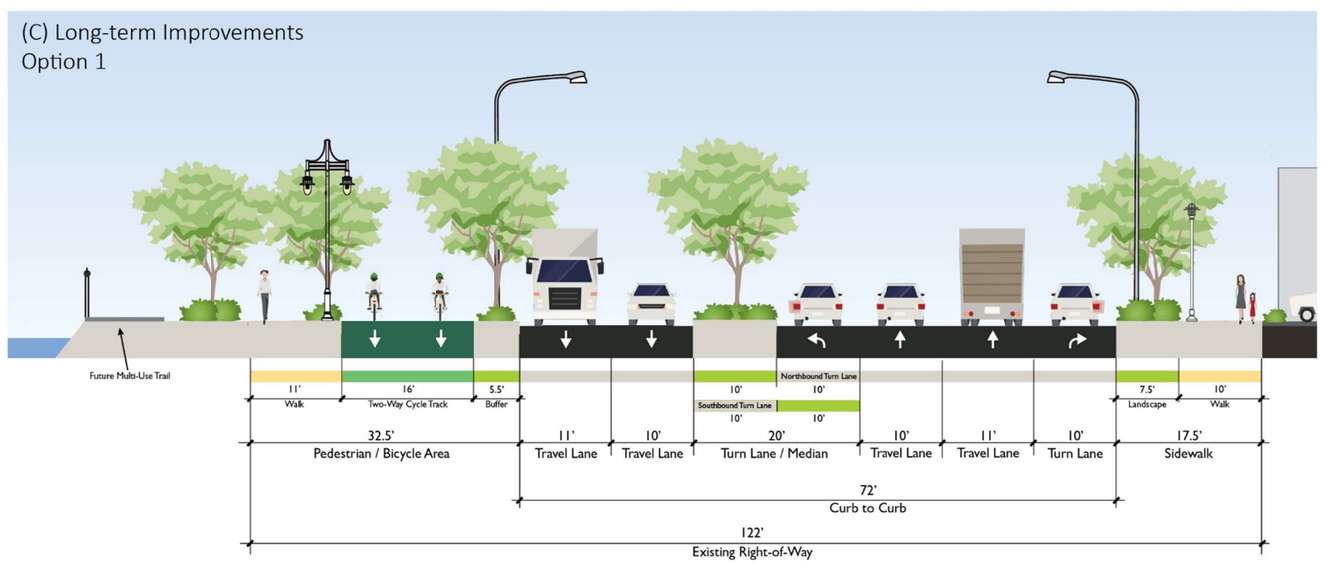
Located on the east side of Blackstone Avenue, the existing Manchester Center functions as a widely visible gateway structure to the area. The space at the future juncture of the Midtown and Herndon Canal trails at the northeast corner of the Blackstone/Shields intersection presents an opportunity for the design and placement of a gateway-type or wayfinding feature that contributes to the branding of the activity center and is tailored in size and content to pedestrians and bicyclists.

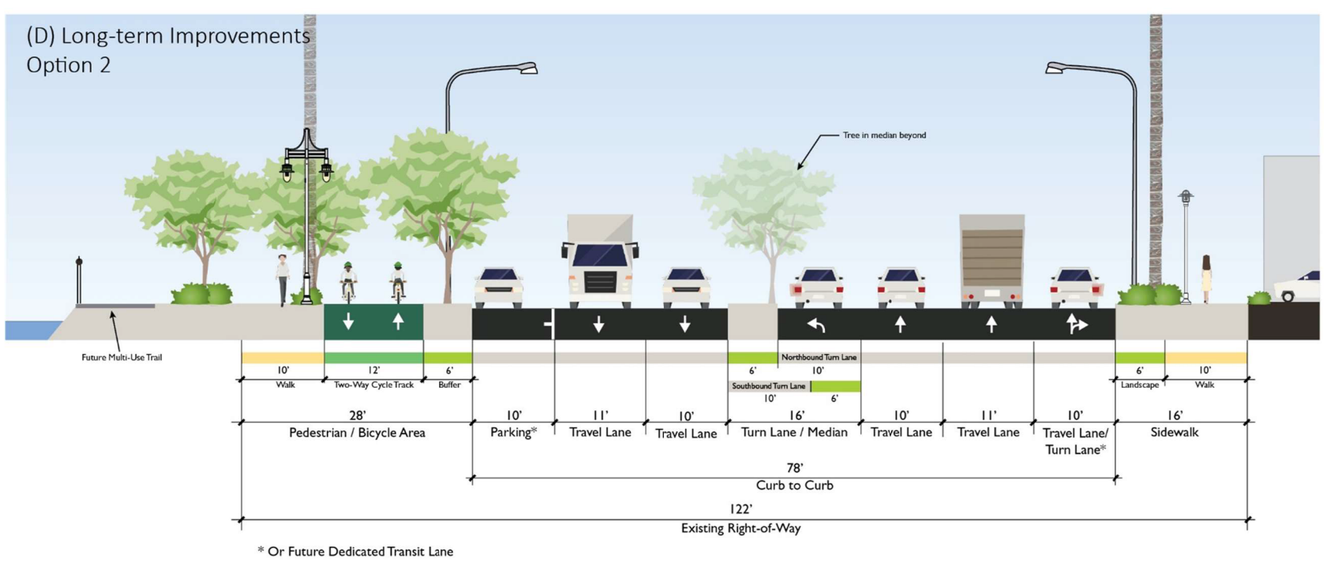


Figures 3.31: North of Shields Near-term & Long-Term Sections – Dakota Avenue to Dayton Avenue (facing North)









Figures 3.32: North of Shields Near-term & Long-Term Sections – Dayton Avenue to Shields Avenue (facing North)

Multimodal Near-term Improvements

Figures 3.31 & 3.32 illustrate conceptual cross-sections for recommended near-term improvements between Dakota and Shields Avenues. The illustrated striping improvements are configured to allow for a testing of both the proposed reduction in the number of lanes and the introduction of a two-way, separated bikeway on the westside of Blackstone Avenue. The near-term improvements also include a northbound one-way separated bikeway option, which is intended to provide the opportunity to simultaneously test the acceptance of the one-way and two-way bicycle facilities by cyclists of varying experience levels. The alignment of one-way facility will require detailed design around the Manchester Transit Center to minimize bus and bicyclist conflicts and along the continuous northbound right-turn lane to minimize conflicts with vehicles making turns into the regional retail located east of Blackstone Avenue.

Near-term striping improvements at signalized and unsignalized intersections should include high-visibility crosswalks and other improvements discussed in the Recommendations and Strategies for Corridor-wide Improvements section (See Section 3.2) at the beginning of this chapter.

In addition to these near-term improvements within the public right-of-way, the City should encourage property and business owners to consider implementing the following improvements on private properties to further enhance and support pedestrian and bicycle access and comfort:

1. Planting of shade trees in existing or new landscape buffers adjacent to sidewalks.
2. The screening and buffering of parking lots located adjacent to sidewalks with landscaped buffer strips, low landscaped fences or trellises planted with vines.
3. The integration of comfortable, tree-lined walkway connections between sidewalks and shopping mall or other business and retail entries.
4. Implementation of temporary improvements discussed in the Corridor-wide Strategies section See Section 3.2).

Table 3.11 Near-Term & Long-Term Improvements North of Shields Avenue

Mode & Locations	Near-Term Improvements	Long-Term Improvements
Segment: Dakota Avenue to Shields Avenue (Shields/Manchester Activity Center)		
Overall Corridor ROW	• Reduce posted speed to 30 mph • Construct per near-term concept	• Reduce posted speed to 30 mph (if not already reduced under Near-term Improvements) • Construct per long-term concept and results of Pilot Project and additional studies. *Option 1:* without on-street parking and option for Transit Only lane *Option 2:* with on-street parking and option for Transit Only lane
Bike	• Two-way separated bikeway with striped buffer and vertical delineators on west side and (for comparative testing) an additional separated bikeway on east side	• *Option 1:* Raised 16' two-way separated bikeway, or • *Option 2:* Raised 12' two-way separated bikeway • *Or, if preferred after further study:* two one-way separated bikeways • Bicycle wayfinding signage (per MUTCD) • Provide bicycle parking
Pedestrian	• Encourage private property owners to screen adjacent parking lots and plant trees in adjacent landscape buffers	• 10'-wide sidewalks with 6' tree-lined landscape buffer • Pedestrian wayfinding signage along pedestrian routes between BRT stops and key civic and other destinations

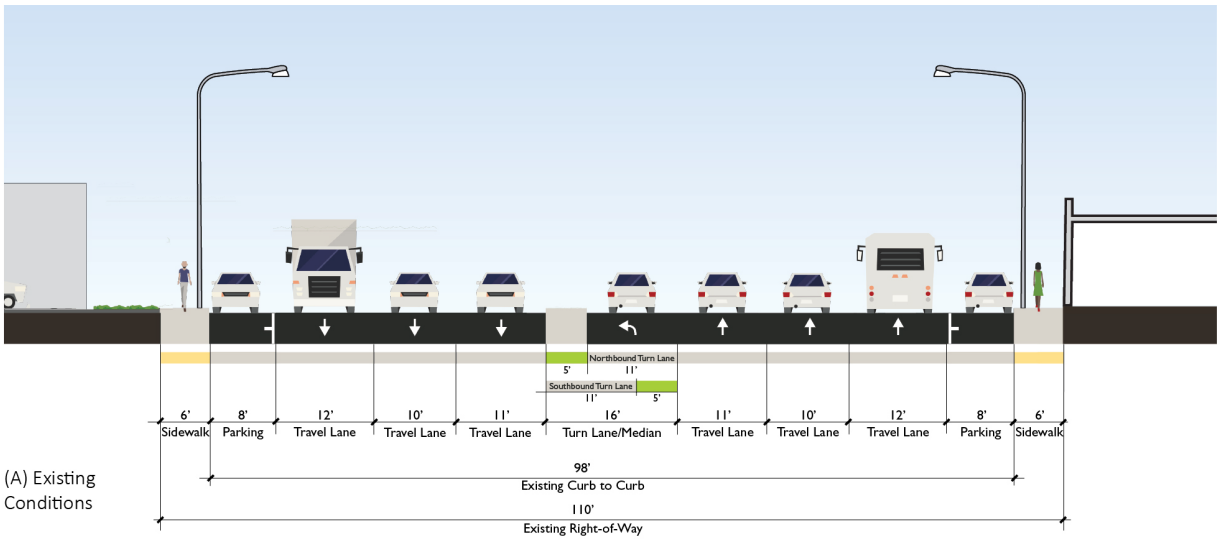
Mode & Locations	Near-Term Improvements	Long-Term Improvements
Streetscape	• Add banners to existing roadway fixtures	• Segment-themed streetscape design to enhance image of regional retail center (new palm and shade trees, pedestrian-scale lighting) • *Option 1 (no parking):* 20'-wide (10' next to turn-lane) median with trees • *Option 2 (with parking/flex lane):* 16'-wide (6' next to turn-lane) median with trees • *Option 1 (no parking):* 20'-wide (10' next to turn-lane) median with trees • *Option 2 (with parking/flex lane):* 16'-wide (6' next to turn-lane) median with trees
Intersections	• Use paint & plastic improvements to enhance crosswalks and outline painted curb extensions and median refuges • Develop enhancements for Dakota and Shields Ave intersections to support transition of bicycles between one and two-way separated bikeways and bicycle facilities on Dakota and Shields	• Study adding new signal at Blackstone/Garland • Improve Dakota and Shields Ave intersections to transition bicycle traffic • Improve signal phasing to support pedestrians, bicycles, and transit vehicles
Transit	n/a	• *Option 2:* Includes potential conversion of 10' parking/flex lane to Transit Only lane (depending on outcome of Pilot Project)

Corridor Segment – Shields Avenue to Hedges Avenue

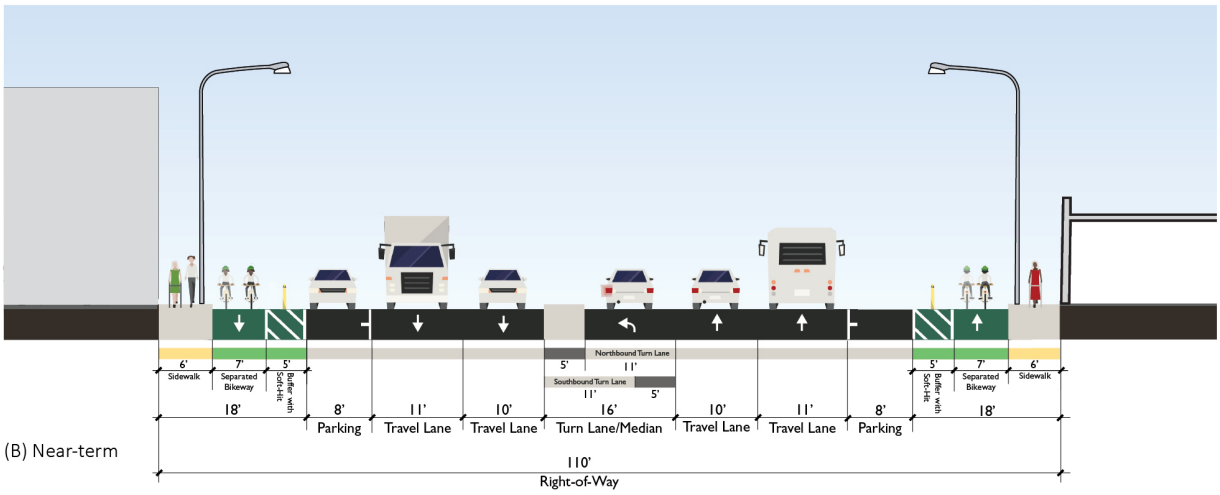
This segment of the Blackstone Avenue/Abby Street Corridor is the longest (at about 1.4 miles), stretching from Shields Avenue in the north to Hedges Avenue in the south. While the northernmost portion of this corridor segment (from Shields Avenue to Princeton Avenue) is located in the Manchester/Shields Activity Center, the remainder falls into the Weldon/Fresno City College (FCC) Activity Center. The segment's land use context is characterized by a varied set of uses that include local and chain brand retail and food establishments, a grocery store, local services, and numerous auto-services and sales establishments. The Fresno City College, located northwest of the McKinley Avenue intersection is the largest individual land use anchor of the Weldon/Fresno City College Activity Center, making it a major destination and generator of activity.

The typical right-of-way width in this segment is 110 feet wide and includes three lanes in each direction, separated by a 5-foot wide concrete median, and on-street parking on both sides of the street (*Figure 3.33*). The continuity of the on-street parking lane is often broken up by very wide driveways or clusters of driveways that result in some blocks not having any usable on-street parking. The eastern side of the sub-segment between McKinley and Hedges does not include on-street parking. There are four signalized intersections throughout the segment, with an additional signal planned at E. Floradora Avenue. Nearly all unsignalized intersections have a dedicated left-turn lane.

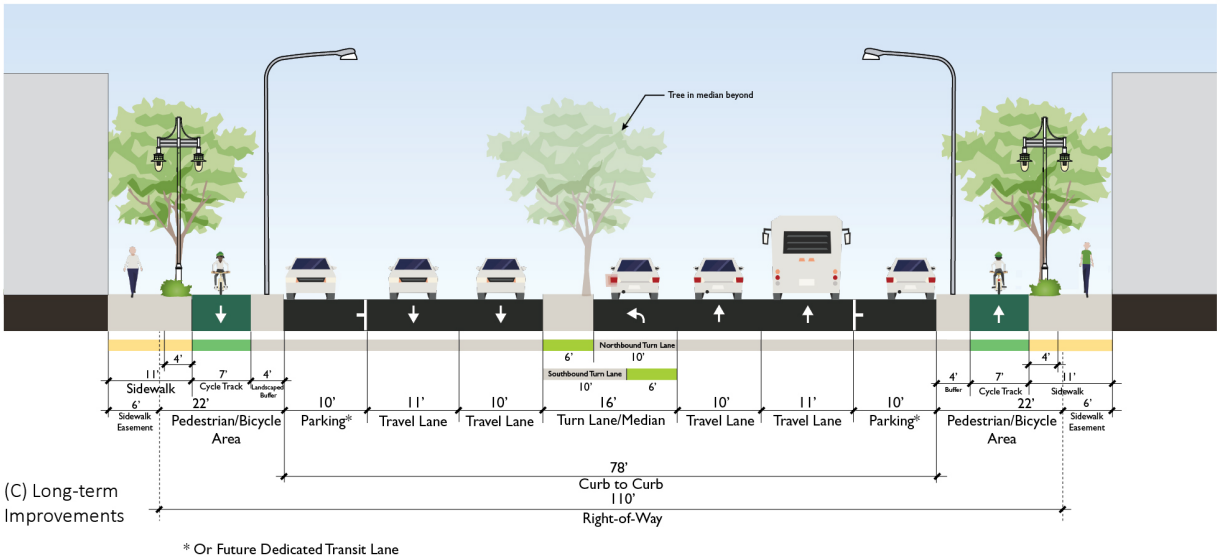
The Shields to Hedges segment consists of two corridor sub-segments, with the primary differentiating characteristics between the two being their land use context and sidewalk conditions. The sub-segment between Shields and McKinley Avenues is characterized by the presence of the FCC, chain retail stores and restaurants, and small local business establishments. The sub-segment between McKinley and Hedges Avenues is dominated by auto-services and sales related uses. Sidewalks throughout most of this sub-segment are constructed of asphalt, which makes them indistinguishable from adjacent, also asphalted driveways, auto-service yards, and parking lots. As a result, instances of cars and objects being parked and placed within the sidewalk area can be observed along this section of the street.



(A) Existing Conditions



(B) Near-term



(C) Long-term Improvements

* Or Future Dedicated Transit Lane

Figures 3.33: Shields to Hedges Near-term & Long-Term Sections (facing North)

Multimodal Long-term Improvements

Table 3.12 provides a summary of the envisioned long-term improvements, which include the introduction of separated bikeways on either side of the street, widened sidewalks, and widened landscape medians in locations where dedicated left-turns are eliminated or shortened. Space for these improvements is gained by reducing the number of travel lanes in each direction from three to two and by removing the parking lane on the west side of the street. In addition, the cross section includes 6-foot wide sidewalk easements on either side of the street. This easement is already required by the City's Development Code for new development along Blackstone Avenue for the purpose of widening sidewalks along this street (also see discussion of Recommendations and Strategies for Corridor-wide improvements at the beginning of this chapter). The envisioned long-term improvements are illustrated in the conceptual cross-sections in ***Figure 3.33.***

Segment-Specific Pedestrian Improvements

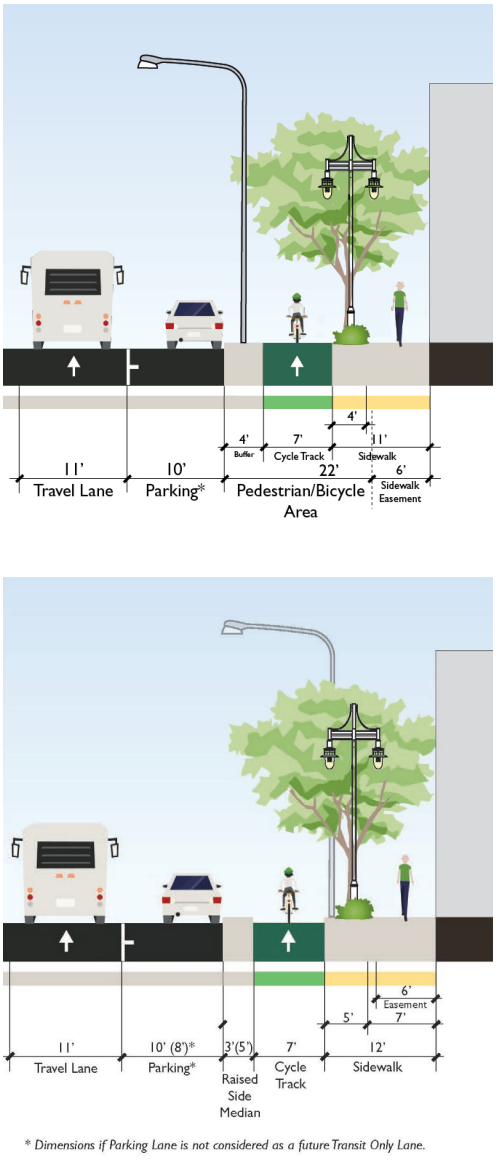
The required 6-foot easement contributes to widening the sidewalk throughout the segment to 11 feet. The sidewalks include space for rows of street trees and pedestrian-scale light fixtures that provide shade and light respectively to both sidewalk and adjacent bikeways (see below). In addition to the widened sidewalks, new signalized crosswalks, curb extensions, and widened medians would improve pedestrian safety, comfort, and convenience at intersections along the corridor.

Segment-Specific Bicycle Improvements

Bicycle improvements for this segment of Blackstone Avenue include a separated bikeway at sidewalk level (also often referred to as raised cycle track), which is buffered from the adjacent sidewalk area by a tree-lined, 4-foot wide buffer that accommodates street trees and other landscaping as well as paved surfaces that provide a connection between sidewalk and parking. A second 4-foot buffer between the bikeway and the adjacent parking lane protects cyclist from opening car doors[23]. The proposed bikeways would establish an important connection between the future Midtown Trail at Blackstone/Shields intersection, the Manchester Shopping Center, and Fresno City College, as well as other businesses along Blackstone Avenue in these two activity centers.

Segment-Specific Intersection Improvements

Figure 3.11 identifies the intersection of Blackstone/University as a potential location for the future implementation of a traffic signal. The feasibility of this signal improvements requires further study. In addition to



Figures 3.34: Separated bicycle track options

[23] Alternatively, the separated bikeway can be configured to be located at roadway grade. An example of this illustrated in Figure 3.34. There are precedents around the country for either of the two bikeway configurations. A final determination about which configuration to implement along the Blackstone/Abby Corridor can be made during future planning and design phases.

the recommended traffic signal installation, several currently unsignalized intersections should be studied for the potential future implementation of pedestrian hybrid beacons (PHBs) in order to reduce distances between crosswalks to about an eighth of a mile. This should include the study of potentially eliminating several of the dedicated left-turns in order to establish new sections of tree-lined medians and pedestrian median refuges (also see discussion under Recommendations and Strategies for Corridor-wide improvements). All signalized intersections should be designed to include bicycle and pedestrian improvements that are consistent with the best practices for protected intersections (see Corridor-wide Strategies).

Segment-Specific Streetscape Improvements

Recommended streetscape improvements along this segment include the implementation of corridor-wide streetscape strategies, such as the planting of shade trees along sidewalks and in medians wider than 8 feet, the use of banners to highlight and identify the presence of Fresno City College, and the installation of pedestrian-scale light fixtures and potential other street furniture between Clinton and McKinley in order to support the emergence of a pedestrian-, bicycle, and transit-oriented district along this section of Blackstone Avenue and the increasing use of the street by FCC students and employees as well as residents to access existing and future retail businesses and restaurants.

A deliberate selection of a palette of tree and landscape plant species as well as street furnishings can help to create a unique identity for this emerging district. In addition, it is recommended to explore designs for a highly visible gateway in conjunction with the FCC's current plans for a new Math and Sciences Building located at the Blackstone/Weldon intersection. Locating a gateway on Blackstone Avenue along with this important new teaching facility would significantly enhance the spatial and functional relationship between the FCC campus and this major entry.

Multimodal Near-term Improvements

Figure 3.33 illustrates conceptual cross-sections for recommended near-term improvements between Shields and McKinley Avenues. The illustrated striping improvements are configured to allow for the testing of 7-foot-wide bikeways on either side of the street that are separated from the adjacent parking lanes by a 5-foot buffer. For an additional level of safety, the buffer would include plastic pylons (at 16-foot spacing) as vertical delineators within the buffer space[24].

Near-term striping improvements at signalized and unsignalized intersections should include high-visibility crosswalks and other improvements discussed in the Recommendations and Strategies for Corridor-wide Improvements section at the beginning of this chapter.

In addition to these near-term improvements within the public right-of-way, the City should encourage property and business owners to consider implementing the following improvements on private properties to further enhance and support pedestrian and bicycle access and comfort:

1. Planting of shade trees in existing or new landscape buffers adjacent to sidewalks.
2. The screening and buffering of parking lots located adjacent to sidewalks with landscaped buffer strips, low landscaped fences or trellises planted with vines.
3. The integration of comfortable, tree-lined walkway connections between sidewalks and shopping mall or other business and retail entries.

[24] The vertical delineators should be installed two feet from the buffer edge along the bikeway in order to allow to the safe opening of passenger car doors.

4. Implementation of temporary improvements discussed in the Recommendations and Strategies for Corridor-wide Improvements section (See Section 3.1).

Sub-Segment #2: McKinley to Hedges Avenue

Multimodal Long-term Improvements

The long-term recommendations for this sub-segment are generally similar to those for Sub-segment #1 with the exception of some location-specific long- and near-term sidewalk improvements. *Table 3.12* provides a summary of the recommended improvements. These include the introduction of separated bikeways on either side of the street, widened sidewalks, and widened landscape medians where dedicated left-turns are eliminated or shortened. The long-term cross section for this sub-segment is the same as for Sub-segment #1 (see ***Figure 3.33***).

Segment-Specific Pedestrian Improvements

Same as for Sub-segment 1. In addition, the sidewalk on the east side of the Blackstone should be constructed through the railroad crossing that includes pedestrian safety measures applicable to pedestrian railroad crossings. Driveways and curb-cuts along this sub-segment should be consolidated to the degree feasible to minimize conflict points between vehicles and pedestrians (also see discussion of Recommendations and Strategies for Corridor-wide improvements at the beginning of this chapter).

Segment-Specific Bicycle Improvements

Same as for Sub-segment 1. Along with the proposed bikeway between Shields and McKinley, this part of the bikeway would advance the completion of a more direct connection between the Manchester Center and downtown Fresno and tie into existing and planned east-west connections at McKinley Avenue (includes connection to Heaton Elementary) and Olive Avenue (to Tower District).

Segment-Specific Intersection Improvements

The city has planned a new signalized intersection at the Blackstone/Floradora intersection. In addition, it is recommended to study the potential installation of a pedestrian hybrid beacon (PHB) at the currently unsignalized intersection of Home Avenue/Blackstone Avenue to reduce the distance between signalized crosswalks to about an eighth of a mile. Study the eliminations of both left-turn lanes at Pine Avenue and replacement of these lanes with a continuous tree-lined media that could potentially include a mid-block PHB-signalized crosswalk at Pine Avenue if and when the redevelopment of existing auto-oriented businesses creates more demand for a pedestrian crossing in this location.

Segment-Specific Streetscape Improvements

The streetscape improvements along this sub-segment would follow the recommendations and strategies for corridor-wide improvements, which include the planting of shade trees along sidewalks and in medians wider than 8 feet as well as the introduction of pedestrian-scale lighting throughout the sub-segment.

Multimodal Near-term Improvements

Same as for Sub-segment #1. ***Figure 3.33*** illustrates conceptual cross-section for recommended near-term improvements between McKinley and Hedges Avenues.

Near-term striping improvements at signalized and unsignalized intersections should include high-visibility crosswalks and other improvements discussed in the Recommendations and Strategies for Corridor-wide Improvements section at the beginning of this chapter

In addition to these near-term improvements within the public right-of-way, the City should encourage property and business owners to consider implementing the following improvements on private properties to further enhance and support pedestrian and bicycle access and comfort:

1. Planting of shade trees in existing or new landscape buffers adjacent to sidewalks.
2. The screening and buffering of parking lots located adjacent to sidewalks with landscaped buffer strips, low landscaped fences or trellises planted with vines.
3. The integration of comfortable, tree-lined walkway connections between sidewalks and shopping mall or other business and retail entries.
4. Implementation of temporary improvements discussed in the Recommendations and Strategies for Corridor-wide Improvements section (See Section 3.1).

Table 3.12 Near-Term & Long-Term Improvements between Shields and Hedges Avenues

Mode & Locations	Near-Term	Long-Term
Segment: Shields Avenue to Hedges Avenue (Shields/Manchester & Weldon/FCC Activity Centers)		
Sub-Segment #1: Shields to McKinley Avenue		
Overall Corridor ROW	• Reduce posted speed to 30 mph • Construct per near-term concept	• Reduce posted speed to 30 mph (if not already reduced under Near-term Improvements) • Construct per long-term concept and results of Pilot Project and additional studies.
Bike	• Parking-separated bikeways with striped buffer/vertical delineators	• Raised separated bikeways with 4' buffers on parking and sidewalk side • Bicycle wayfinding signage (per MUTCD) • Provide bicycle parking
Pedestrian	• Encourage private property owners to screen adjacent parking lots and plant trees in adjacent landscape buffers	• 11'-wide sidewalks (inclusive of 6' easement on private property (as required for new development) • Pedestrian-scale lighting and shade trees • Install signalized (signals/PHBs) crosswalks to reduce distances between crosswalks to an eighth of a mile
Streetscape	• Add banners to existing roadway fixtures to announce FCC Campus/ Activity Center/events • Reconstruct as sidewalk abandoned or extraneous driveways	• Create highly visible gateway feature at near Blackstone/Weldon intersection to identify major entry to FCC campus • Create pedestrian- and transit-oriented district by establishing segment-themed streetscape design (signature trees, light fixtures, wayfinding signage, furnishings, banners) • Where feasible, eliminate and shorten left turns off Blackstone to create wider medians • Add trees in new medians
Intersection Improvements	• Use paint & plastic improvements to enhance crosswalks and outline painted curb extensions and median refuges	• Study potential new signalized intersection at Blackstone/University Ave • Improve signal phasing to support pedestrians, bicycles, and transit vehicles
Transit	• Temporarily extend bus stop platform to travel lane or stripe pullout with bikeway going behind shelter (where feasible)	• Bus stop bulb-outs with bikeways behind, or • Convert 10' parking lane to transit-only lane (depending on outcome of Pilot Project)
Sub-Segment #2: McKinley to Hedges Avenue		
Overall Corridor ROW	• Reduce posted speed to 30 mph • Construct per near-term concept	• Reduce posted speed to 30 mph (if not already reduced under Near-term Improvements) • Construct per long-term concept and results of Pilot Project and additional studies.

Mode & Locations	Near-Term	Long-Term
Bike	• Parking-separated bikeways with striped buffer/vertical delineators	• Raised separated bikeways with 4' buffers on parking and sidewalk side • Bicycle wayfinding signage (per MUTCD) • Provide bicycle parking where pedestrian-oriented districts or nodes develop
Pedestrian	• Close sidewalk gaps • Improve existing sidewalk surfaces, and clearly mark sidewalk area where covered with asphalt • Encourage private property owners to screen adjacent parking lots and plant trees in adjacent landscape buffers • Reconstruct as sidewalk abandoned or extraneous driveways	• 11'-wide sidewalks (inclusive of 6' easement on private property (as required for new development) • Pedestrian-scale lighting and shade trees • Install signalized (full/signals/PHBs) crosswalks to reduce distances between crosswalks to an eighth of a mile • Wayfinding signage should be considered where pedestrian-oriented districts or nodes develop and along pedestrian routes between BRT stops and key civic and other destinations
Streetscape	• Use banners to announce Blackstone Avenue and events	• Where feasible, eliminate and shorten left turns off Blackstone to create wider medians • Add trees in new medians
Intersection Improvements	• Use paint & plastic improvements to enhance crosswalks and outline painted curb extensions and median refuges	• Improve signal phasing to support pedestrians, bicycles, and transit vehicles • Explore feasibility of reconfiguring merge of Blackstone/Abby into intersection or two-lane roundabout (also see Hedges to Highway 180 below)
Transit	• Temporarily extend bus stop platform to travel lane or stripe pullout with bikeway going behind shelter (where feasible)	• Bus stop bulb-outs with bikeways behind, or • Convert 10' parking lane to transit-only lane (depending on outcome of Pilot Project)

Corridor Segment – Hedges Avenue to Highway 180

The half-mile long, southernmost segment of the Corridor is located in the Olive/Tower Gateway Activity Center and consists of the one-way couplet streets of Blackstone Avenue, running in the south-bound, and Abby Street, running in the north-bound direction. At the northern end of the couplet, the two streets merge at the Hedges Avenue intersection. At the southern end, both streets continue as one-way roadways beyond the Highway 180 overpass.

The existing cross sections (see *Figures 3.35 & 3.36*) for both streets include three travel lanes in each direction, on-street parking, and sidewalks on either side. The typical right-of-way widths are 78 feet for Abby Street and 74 feet for Blackstone Avenue respectively. Signalized intersections are located on both streets at Olive Avenue and the Highway 180 ramps. On Blackstone Avenue, a new signal is planned at E. Webster Avenue, primarily to improve the safety for school children crossing from the Susan B. Anthony Elementary School into residential areas located east of Blackstone Avenue and Abby Street.

The land use context on Abby Street includes auto-sales, small retail, office and service establishments, and a few single-family homes. Along Blackstone Avenue, the types of businesses are similar but are more in number. There aren't any single-family residential units along the segment. Near the southern end of both streets, Susan B. Anthony Elementary School and the J.E. Young Academic Center form a cluster of educational uses that draws a lot of activity over the course of the day.

For the purpose of this Strategy each of the two legs of the couplet is considered a sub-segment of this part of the Corridor.

Sub-Segment #1: Abby Street (northbound)

Multimodal Long-term Improvements

Table 3.13 provides a summary of the envisioned long-term improvements, which include the introduction of a separated bikeway on both streets, pedestrian-scale lighting, on-street parking on both sides, and widened sidewalks. Space for these improvements is gained by reducing the number of travel lanes in each direction from three to two travel lanes and by narrowing the existing wide lanes to 10' and 11' respectively. The envisioned long-term improvements are illustrated in the conceptual cross-sections in ***Figure 3.35***

Segment-Specific Pedestrian Improvements

Under the long-term improvements, the existing sidewalk on the west side of Abby Street would remain 11 feet wide. The width of the sidewalk on the east side would increase to 15' and include space for the planting of shade trees, pedestrian scale lighting, and a landscaped buffer between the paved sidewalk surface and the separated bikeway (see below). In addition to the widened sidewalks, new signalized or otherwise enhanced crosswalks and curb extensions would improve pedestrian safety, comfort, and convenience at intersections along the corridor.

Segment-Specific Bicycle Improvements

Bicycle improvements on Abby Street include a separated bikeway at sidewalk level on the east side of the street, which is buffered from the adjacent sidewalk area by tree-lined, 6-foot wide landscape buffer. A second, 6-foot wide buffer located between the bikeway and the adjacent parking lane would protect cyclist from opening car doors. The buffer would consist of a combination of paved and landscaped surfaces to accommodate passengers exiting from cars and a second row of shade trees. The proposed bikeway would advance a more direct bicycle connection of the Southern Blackstone Avenue/Abby Street Corridor to Downtown Fresno.

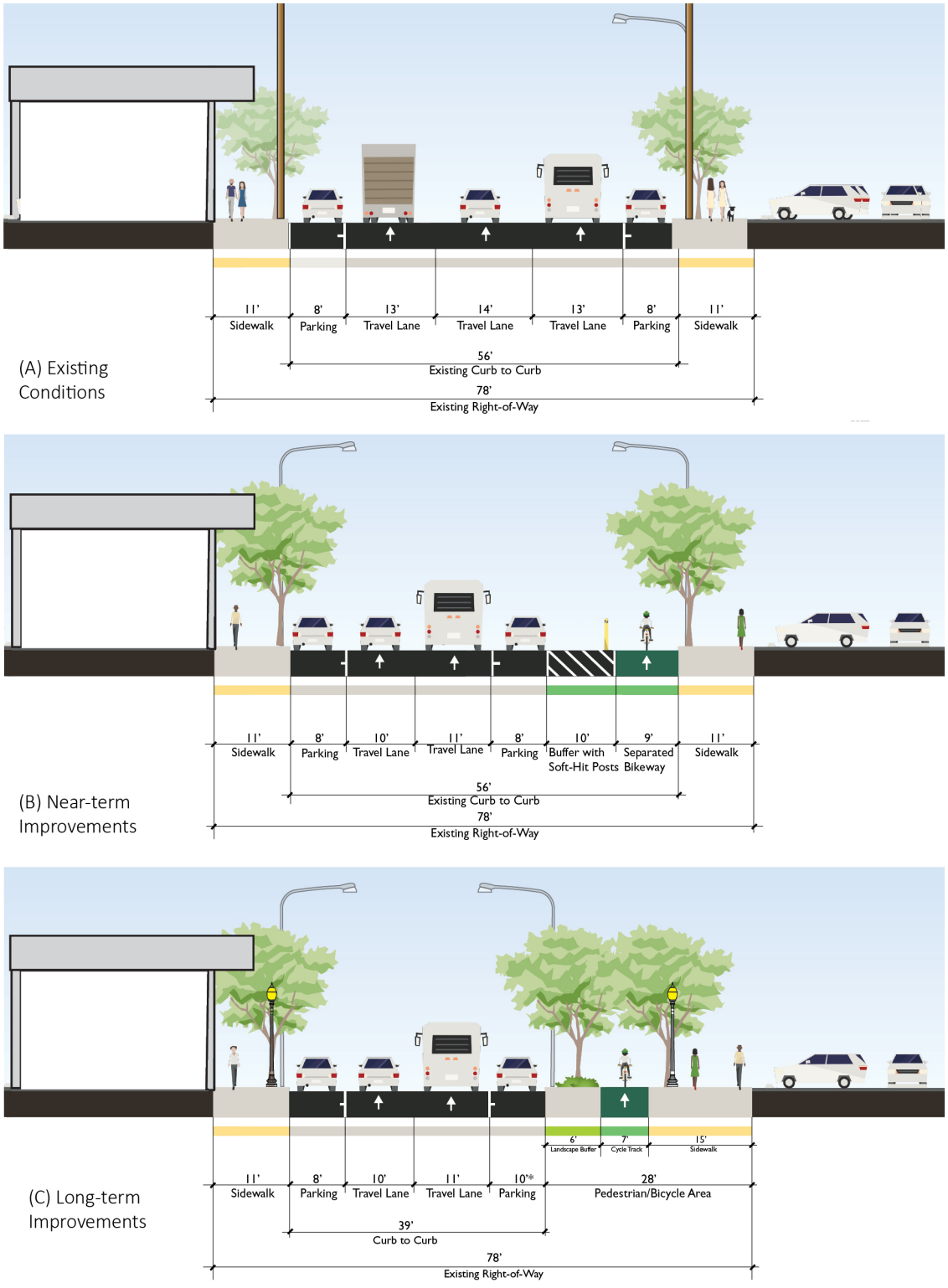
Segment-Specific Intersection Improvements

It is recommended to study the feasibility of implementing additional crosswalks along the length of Abby Street after the recommended reduction in posted speed has occurred (see Recommendations and Strategies for Corridor-wide Improvements). The study should explore the feasibility of using less costly rectangular rapidly-flashing beacons (RRFBs) with the fallback option of using pedestrian hybrid beacons (PHBs). Particular emphasis should be given to improving access routes to Susan B. Anthony Elementary School and other educational facilities in the couplet area. ***Figure 3.11*** shows an initial selection of locations for which enhanced crosswalk safety improvements should be studied. The locations are based on the goal to provide a safety enhanced crosswalk every other block.

Segment-Specific Streetscape Improvements

The streetscape improvements along this sub-segment would follow the recommendations and strategies for corridor-wide improvements, which include the planting of shade trees along sidewalks, and the installation of pedestrian-scale light fixtures. As redevelopment of properties in the Olive/Tower Gateway Activity Center occurs, consideration should be given to creating a pedestrian- and transit-oriented district by using themed streetscape elements (signature trees, light fixtures, furnishings, and banners). Banners could also be used to identify the significant cluster of educational facilities in the area and associated activities.

As discussed in ***Section 3.3*** Initial Feasibility Assessment of Potential Lane Reductions, a future design and traffic study should explore the feasibility of reconfiguring the confluence point of Blackstone



Figures 3.35: Hedges Ave to Highway 180 – Abby Sections (facing North)

Avenue/Abby Street at the Hedges Avenue intersection. During this process, consideration should be given to integrating a gateway to the Olive/Tower Gateway Activity Center into the final design of whichever configuration is selected for implementation.

Multimodal Near-term Improvements

Figure 3.35 illustrates conceptual cross-sections for recommended near-term improvements along Abby Street. The illustrated striping improvements are configured to allow for the testing of a 9-foot-wide bikeway on the east side of the street that is separated from the adjacent parking lanes by a 10-foot buffer. For an additional level of safety, the buffer would include plastic pylons (at 16-foot spacing) as vertical delineators within the buffer space[25].

Near-term striping improvements at signalized and unsignalized intersections should include high-visibility crosswalks and other improvements discussed in the Recommendations and Strategies for Corridor-wide Improvements section at the beginning of this chapter.

Sub-Segment #2: Blackstone Avenue (southbound)

Multimodal Long-term Improvements

Table 3.13 provides a summary of the envisioned long-term improvements, which, similar to Abby Street, include the introduction of a separated bikeway on the west side of the street, supplemental pedestrian-scale lighting, on-street parking on both sides, and widened sidewalks. Space for these improvements is gained by reducing the number of travel lanes in each direction from three to two travel lanes and by narrowing the existing wide lanes to 10' and 11' respectively. The envisioned long-term improvements are illustrated in the conceptual cross-section in ***Figure 3.36***

Segment-Specific Pedestrian Improvements

Under the long-term improvements, the existing sidewalks on the east side of Blackstone Avenue would remain 10 feet wide. The width of the sidewalk on the west side would increase to 11 or 12 feet, depending on the available right-of way, and include space for the planting of shade trees, supplemental pedestrian scale lighting, and a landscaped buffer between the paved sidewalk surface and the separated bikeway (see below). In addition, new enhanced crosswalks and curb extensions would improve pedestrian safety, comfort, and convenience at intersections along the corridor.

Segment-Specific Bicycle Improvements

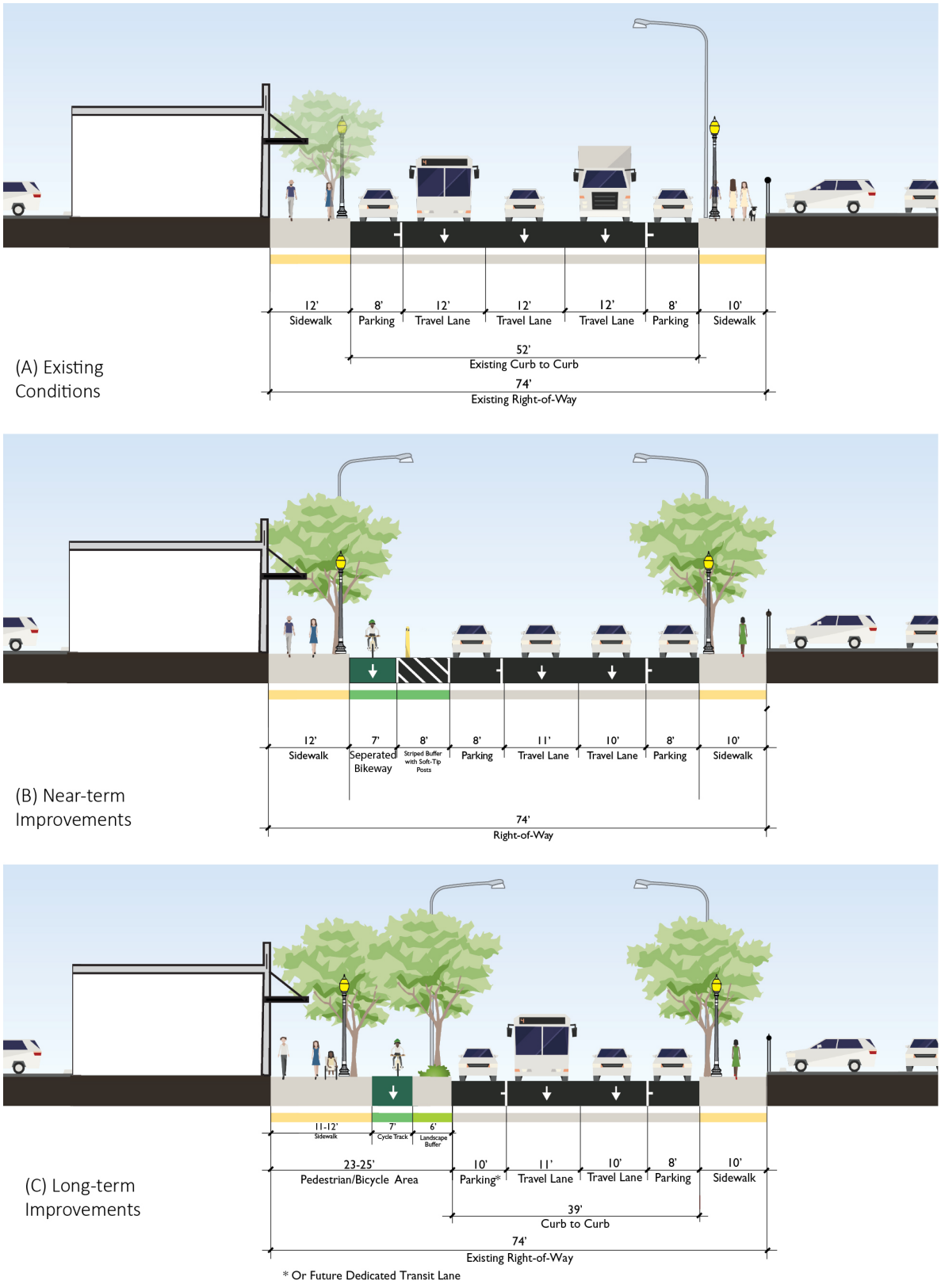
Bicycle improvements on Abby Street include a separated bikeway at sidewalk level on the east side of the street, which is buffered from the adjacent sidewalk area by tree-lined, 4-foot wide landscape buffer. A second, 6-foot wide buffer located between the bikeway and the adjacent parking lane would protect cyclist from opening car doors. The buffer would consist of a combination of paved and landscaped surfaces to accommodate passengers exiting from cars and a second row of shade trees. The proposed bikeway would advance a more direct bicycle connection of the Southern Blackstone Avenue/Abby Street Corridor to Downtown Fresno.

Segment-Specific Intersection Improvements

The City is currently in the process of implementing a new traffic signal and signalized crosswalks at the Webster/Blackstone intersection. In addition, it is recommended to study the feasibility of implementing additional crosswalks along this stretch of Blackstone Avenue after the recommended reduction in posted speed has occurred (see Recommendations and Strategies for Corridor-wide Improvements). The study should explore the feasibility of using less costly rectangular rapidly-flashing beacons (RRFBs) with the fallback option of using pedestrian hybrid beacons (PHBs). Particular emphasis should be given to improving access routes to Susan B. Anthony elementary school and other educational facilities in the

[25] The vertical delineators should be installed two feet from the buffer edge along the bikeway in order to allow to the safe opening of passenger car doors.

couplet area. *Figure 3.11* shows an initial selection of locations for which enhanced crosswalk safety improvements should be studied. The locations are based on the goal to provide a safety enhanced



Figures 3.36: Hedges Ave to Highway 180 – Blackstone Sections (facing North)

crosswalk every other block. In addition, it is strongly recommended to study signalizing the crosswalk across the southbound Highway 180 off-ramp.

As discussed under Sub-Segment #1, a future study should explore the feasibility of reconfiguring the confluence point of Blackstone Avenue/Abby Street at the Hedges intersection into a reconfigured intersection at hedges or as a two-lane roundabout.

Segment-Specific Streetscape Improvements

Same as for Sub-Segment #1, except that the addition of pedestrian-scale light fixtures would be limited to provide supplemental, matching fixtures in locations that are underlit.

Multimodal Near-term Improvements

Figure 3.36 illustrates conceptual cross-sections for recommended near-term improvements along this segment of Blackstone Avenue. The illustrated striping improvements are configured to allow for the testing of a 7-foot-wide bikeway on the west side of the street that is separated from the adjacent parking lanes by an 8-foot buffer. For an additional level of safety, the buffer would include plastic pylons (at 16-foot spacing) as vertical delineators within the buffer space[26].

Near-term striping improvements at signalized and unsignalized intersections should include high-visibility crosswalks and other improvements discussed in the Recommendations and Strategies for Corridor-wide Improvements section at the beginning of this chapter (See Section 3.1).

Table 3.13 Near-Term & Long-Term Improvements between Hedges Avenue and Highway 180

Mode & Locations	Near-Term Improvements	Long-Term Improvements
Segment: Hedges Ave to Highway 180 (Olive/Tower Gateway Activity Center)		
Sub-Segment #1: Abby Street		
Overall Corridor ROW	• Reduce posted speed to 30 mph • Construct per near-term concept	• Reduce posted speed to 30 mph (if not already reduced under Near-term Improvements) • Construct per long-term concept and results of Pilot Project and additional studies.
Bike	• Parking-separated bikeways with striped buffer/vertical delineators on east side of street	• Raised separated bikeways with buffers on parking and sidewalk side
Pedestrian	• Improve existing sidewalk surfaces • Work with property owners to reduce encroachment on sidewalks • Reconstruct as sidewalk abandoned or extraneous driveways	• 11'- to 15'-wide sidewalks • Pedestrian-scale lighting and shade trees • Install enhanced (RRFBs/PHBs) crosswalks to reduce distances between crosswalks to an eighth of a mile
Streetscape	• Use banners to announce Activity Center and events • Plant supplemental trees along sidewalks	• Create pedestrian- and transit-oriented district by establishing segment-themed streetscape design (signature trees, light fixtures, furnishings, banners) • Explore gateway at merge of Blackstone/Abby
Intersections	• Use paint & plastic improvements to enhance crosswalks and outline painted curb extensions and median refuges	• Install signalized PHBs or RRFBs at select crosswalks between existing signalized intersections • Improve signal phasing to support pedestrians, bicycles, and transit vehicles • Explore feasibility of reconfiguring merge of Blackstone/Abby into intersection or two-lane roundabout

[26] The vertical delineators should be installed two feet from the buffer edge along the bikeway in order to allow to the safe opening of passenger car doors.

Mode & Locations	Near-Term Improvements	Long-Term Improvements
Transit	• Temporarily extend bus stop platform to travel lane or stripe pullout with bikeway going behind shelter (where feasible)	• Bus stop bulb-outs with bikeways behind, or • Convert 10' parking lane to transit-only lane (depending on outcome of Pilot Project)
Sub-Segment #2: Blackstone Avenue		
Overall Corridor ROW	• Reduce posted speed to 30 mph • Construct per near-term concept	• Reduce posted speed to 30 mph (if not already reduced under Near-term Improvements) • Construct per long-term concept and results of Pilot Project and additional studies.
Bike	• Parking-separated bikeways with striped buffer/vertical delineators on west side of street	• Raised separated bikeways with buffers on parking and sidewalk side • Bicycle wayfinding signage (per MUTCD) • Provide bicycle parking
Pedestrian	• Improve existing sidewalk surfaces • Work with property owners to reduce encroachment on sidewalks • Reconstruct as sidewalk abandoned or extraneous driveways	• 10' to 15' wide sidewalks • Supplemental pedestrian-scale lighting and shade trees • Install enhanced (RRFBs/PHBs) crosswalks to reduce distances between crosswalks to an eighth of a mile
Streetscape	• Use banners to announce Activity Center and events • Plant supplemental trees along sidewalks	• Create pedestrian- and transit-oriented district by establishing segment-themed streetscape design (signature trees, light fixtures, wayfinding signage, furnishings, banners)
Intersections	• Use paint & plastic improvements to enhance crosswalks and outline painted curb extensions and median refuges	• Improve signal phasing to support pedestrians, bicycles, and transit vehicles • Explore feasibility of reconfiguring merge of Blackstone/Abby into intersection or two-lane roundabout
Transit	• Temporarily extend bus stop platform to travel lane or stripe pullout with bikeway going behind shelter (where feasible)	• Bus stop bulb-outs with bikeways behind, or • Convert 10' parking lane to transit-only lane (depending on outcome of Pilot Project)

4. Implementation Strategy

4.1 Overall Approach to Implementation Phasing and Funding

With its complete streets framework, the Southern Blackstone Smart Mobility Strategy provides the foundation for a series of future steps that have to be taken to implement the community's vison for changes along the Blackstone Avenue/Abby Street Corridor. This section provides an overview of recommendations to approach the phasing of implementation related to furthering the design, evaluation, and construction of the envisioned near- and long-term improvements. The Funding Strategy section of this chapter (See Section 4.3) outlines potential funding sources that should be considered in securing the funding needed for the outlined series of implementation steps and the eventual construction of improvements.

Overall Approach

The process of carrying a vision concept to final implementation will result in additional findings about existing conditions and new information generated by further evaluation of the recommended improvements. In turn, these will be addressed through making refinements to the concept design and subsequent iterations of increasingly detailed design and engineering plans. The concept designs presented in this strategy have been created to be both clear in their incorporation of pedestrian, bicycle, and streetscape improvements favored by the community and flexible in their dimensional composition, so that findings from future further evaluation of the concepts for near- and long-term improvements (during Pilot Project phase) can be addressed by making refinements to rather than drastically altering the community's vision. This relates in particular to the design concept's proposal to remove one travel lane in each direction and the built-in flexibility of the design concepts to allow for a potential future conversion of parking lanes to a dedicated transit lane.

Another key aspect of the proposed implementation strategy is to implement a low-cost version of the envisioned permanent (long-term) improvements in the near future (3 to 5 years) and to test and evaluate these near-term improvements for their viability and functionality prior to committing significant capital funds for construction of the long-term improvements. This approach results in an implementation process that:

- Is sensitive to the community's desire to see improvements to the Blackstone Avenue/Abby Street Corridor in the near-term;
- Is flexible because it allows for conceptual refinements and modifications informed by findings from testing and evaluating the envisioned improvements through Pilot Project(s);
- Is flexible with respect to funding and phasing because it allows for the incremental implementation of long-term improvements while near-term improvements, if implemented along the length of the Corridor, provide a baseline-level of the desired improvements.

The following paragraphs outline additional details about particular aspects of the recommended implementation strategy.

Dimensional Compatibility of Near- and Long-Term Improvements

The recommended cross sections for near and long-term improvements are dimensionally compatible because they have only minor offsets between continuing lanes and bicycle facilities across intersections. This condition allows for the construction of near- and long-term improvements on adjacent blocks without causing compatibility issues at intersections where a transition from near- to long-term improvements or vice versa occurs. The dimensional compatibility provides a significant level of flexibility in the phasing of

improvements, with long-term improvements able to be implemented on a block-by-block basis or, if funding is available, in larger increments, such as several blocks, by segment.

While the dimensional compatibility is a key factor in providing flexibility for the phasing of improvements, it needs to be confirmed in future design phases whether the alignment of underground utilities is also compatible with the described possibility of an incremental approach to implementation.

Potential Future Conversion of Parking Lane into Transit Only Lane

As described in *Section 3.4*, the cross-sections for all segments provide for the option to convert the 10-foot wide parking lanes into Transit Only lanes should it be determined that the multi-modal performance of the Corridor can only be maintained by providing a dedicated lane for transit vehicles. While this is not the currently preferred cross-section because it removes the buffering effect that parked vehicles provide for areas used by bicyclists and pedestrians, maintaining the conversion as a future option, lends flexibility to the phase of the implementation process that takes place after a comprehensive evaluation of the near-term improvements has been conducted as part of the Pilot Project.

Pilot Project to Evaluate Recommended Improvements (Shields to McKinley)

A key assumption of the vision for near- and long-term improvements presented in this Strategy is that the Blackstone Avenue/Abby Street Corridor can meet the City's multi-modal performance goals for transit corridors that serve activity centers even if one travel lane in each direction is removed. It is recommended that this assumption be tested and evaluated through the construction of a Pilot Project that includes the comprehensive assessment of a range of multi-modal performance criteria. This evaluation would include a detailed traffic study. It is recommended that the Pilot Project be based on the Near-term Improvements outlined in this Strategy. The assessment can serve to determine:

5. The viability and functionality of the recommended Near-term Improvements;
6. The need for potential refinements or modifications to the design concepts for Near-term Improvements;
7. The potential for expanding the construction of Near-Term Improvements along other segments of the Corridor;
8. The viability of moving forward with refining the design of the envisioned Long-term Improvements, which are based on the same key assumptions as the Near-term Improvements

During the public outreach conducted for this Strategy, an overwhelming majority of participants expressed interest in configuring the Near-term Improvements to include a separated bikeway (as opposed to a painted sidewalk expansion)[27]. In order to test the functionality and viability of a separated bikeway on Blackstone Avenue, which is not currently included in the City's network of bicycle facilities, it is recommended to locate the Pilot Project in an area of the Corridor that ties into existing east-west bicycle connections and where the new bikeway can serve bicycle trips to destinations along Blackstone Avenue. These conditions are met by the Corridor segment between Shields and McKinley Avenues, both of which have existing bicycle lanes. At either end, the segment is anchored by a major land use that has the potential to generate bicycle trips. The Manchester Center, located at the northern end of the segment, is a major destination for potential bicycle trips and the Fresno City College (FCC) campus, located at the southern end, is a potential major generator for bicycle trips up and down the Pilot Project area.

While the Near-term Improvements focus on improving the conditions for bicyclists, they also include significant near-term improvements for pedestrians by shifting moving traffic away from existing sidewalks and by foreshadowing the envisioned long-term crosswalk improvements at intersections through interim

[27] As opposed to a sidewalk that is widened by painting and striping the current parking lane as an expansion sidewalk expansion area (see Appendix for a typical cross-section of this alternate design approach).

striping improvements (as previously described in *Section 3.4*). As with the bicycle improvements, the Shields to McKinley Avenue segment is well suited for the testing of near-term pedestrian improvements because of the large student population located at Fresno City College campus. The segment is also near or includes sites for already planned or future development of new housing and mixed-use projects, which have the potential to generate additional bicycle and pedestrian trips. Finally, the fact that four of the eight BRT stops along the study area are located in this segment. The Near-Term Improvements are expected to make accessing these stops, including the pair of stops located at the entry to the FCC at Weldon Avenue, more comfortable.

Additional transportation studies are likely needed to determine how the results of the Pilot Project can be applied to other parts of the Corridor, such as the couplet segment of Blackstone Avenue and Abby Street (Hedges Avenue to Highway 180) and the corridor segment north of Shields.

Design and Construction of Near-term and Long-term Improvements

After a comprehensive evaluation of the initial Pilot Project has been completed, the results should be used to make refinements and modifications to the concept designs for near- and long-term improvements as these are further developed for implementation along other parts of the Corridor.

After evaluating the Pilot Projects' outcomes, consideration should be given to implementing refined near-term improvements for the entirety of the Corridor. Doing so will extend the reach of pedestrian and bicycle improvement associated with the near-term improvements and avoid the reduction in the number of travel lanes appears to be piecemealed and confusing to drivers and bicyclists traveling on the Corridor.

Prior to preparing final engineering drawings for the construction of refined long-term improvements a decision should be made about the use of the 10-foot parking (flexible) lane. This decision includes the following primary options:

1. Permanently including a lane for on-street parking in the long-term. This decision could be coupled with reducing the width of the parking lane to 8 feet while increasing the width of other elements in the typical cross section by the same total margin. It would also allow for the construction of permanent curb extensions at intersections.
2. Eliminating on-street parking and converting the 10-foot parking (flexible) lane into a dedicated Transit only lane (includes restriping of adjacent travel lane to 10 feet and increasing the width of the flexible lane to 11 feet).
3. Maintaining the 10-foot parking (flexible) lane as a future option even under the long-term improvements. Doing so would not allow for the construction of permanent curb extensions at intersections as it would be costly to remove these if the lane is ever converted into a Transit Only lane.

Summary of Implementation Steps

Table 4.1 provides a summary of implementation steps involved in the further planning, design, and funding of the envisioned near- and long-term improvements:

Table 4.1 Implementation Steps

Step 1	Finalize extent of segment where to test Near-Term Improvements as Pilot Project (Recommended: Shields Avenue to McKinley Avenue).
Step 2	Identify detailed multi-modal performance criteria for comprehensive evaluation of near-term improvements with respect to all modes and other evaluation criteria during Pilot Project phase.
Step 3	Identify funding source(s) for detailed design, environmental clearance, construction, and evaluation of Pilot Project. Prepare detailed design and construction documentation, conduct speed study to lower posted speed limit to 30 miles per hour (in one or two steps as discussed in Section 3.1).
Step 4	Construct Pilot Project between Shields and McKinley Avenues and conduct comprehensive evaluation of multi-modal performance criteria.
Step 5	Decide on future implementation steps based on outcomes of evaluation of Pilot Project(s): • Make refinements and potential modifications to design approach for Near-Term Improvements prior to continuation or expansion of improvements • Study potentially expansion of Near-Term Improvements to other segments or the entire Corridor • Make potential modifications to design approach for community's Long-Term Vision Improvements
Step 6	Identify funding source(s) for detailed design, environmental clearance, and construction of Corridor blocks or segments slated for implementation of Long-Term Improvements. Prepare detailed design and construction documentation (based on outcomes of Pilot Project and modifications based on Evaluation results).
Step 7	Prepare detailed design and construction documentation for Long-Term Improvements
Step 8	Construct blocks or segments of Long-Term Improvements

4.2 Level-of-Magnitude Construction Costs

This section provides level-of-magnitude estimates of probable cost for the construction of the near-term and long-term improvements described in the previous chapters of the Strategy (***Table 4.2***). The provided figures serve the sole purpose of conveying a general sense of the magnitude of capital funds needed to construct the envisioned improvements and to inform the process of identifying suitable funding sources (also see ***Section 4.3*** - *Locally Feasible Financing Strategies*).

Following is a list of key assumptions and limitations related to the level-of-magnitude estimates of probable cost (see the ***Appendix*** for a more detailed list of included line items, unit costs, additional assumptions and notes):

1. Majority of unit costs are based on recent projects in the City of Fresno (provided by the Public Works Department)
2. Unit and total costs are not escalated to a future year of implementation
3. A 35% contingency was applied to the construction cost for long-term improvements account for additional costs that will likely develop from future design phases and currently unknown factors, such as the discovery of conflicts or complications related to underground utilities.

4. A lower contingency of 25% was applied to the construction cost for near-term improvements, as these do not include construction elements that could trigger conflicts with underground utilities.
5. The provided totals include soft costs for Scoping (3%), CEQA (5%), Design (15%), and Construction & Engineering Administration (15%) as percentages of the construction cost.
6. The detailed evaluation and traffic studies associated with the Pilot Project are not included in the provided costs.
7. Costs for the construction of recommended near-term improvements were calculated for both, the recommended Pilot Project area between Shields and McKinley and for construction along the length of the entire Blackstone Avenue/Abby Street Corridor.
8. Costs for the construction of the envisioned long-term improvements were calculated on a sample block basis. Each sample block includes the improvement of the two adjacent intersections. One of the two is assumed to be an intersection with a minor cross street (e.g. Cambridge Avenue) and the other with a larger cross street (e.g. Clinton Avenue).
9. Separate sample-block estimates were developed for the corridor segments north and south of Hedges Avenue respectively. This accounts for the different typical cross sections applicable to the segments north and south of the Blackstone Hedges intersection. No separate calculation were prepared for Abby Street and Blackstone Avenue south of Hedges Avenue because their typical near- and long-term cross sections are substantially similar.
10. The sample-block approach is based on the assumption that implementation of the long-term improvements would likely occur on the basis of constructing one or a few blocks at a time as funding sources become available and/or the development of properties spurs the reconstruction of successive segments of the Corridor.

Table 4.2 Level-of-Magnitude Costs for Near- and Long-Term Improvements

Near-term Improvements –Shields Avenue to McKinley Avenue (Pilot Project)	
$2.8 million (including 25% contingency and soft costs*)	
Near-term Improvements – Corridor-wide (Dakota Avenue to Highway 180)	
$3.3 million (including 25% contingency and soft costs*)	*Includes no new PHBs (HAWK signals)*
$5.0 million (including 25% contingency and soft costs*)	*Includes 5 locations for construction of new PHBs (HAWK signals)*
Long-term Improvements – for One Block and the Two Adjacent Intersections (NORTH of Hedges)	
$2 million (including 35% contingency and soft costs*)	
Long-term Improvements – for One Block and the Two Adjacent Intersections (Blackstone or Abby)	
$1.3 million (including 35% contingency and soft costs*)	
Long-term Improvements – Corridor-wide (Dakota Avenue to Highway 180)	
$53 million (including 35% contingency and soft costs*)	

* *includes cost for Scoping (3%), CEQA (5%), Design (15%), and Construction & Engineering Administration (15%)*

In addition to the capital costs listed above, several of the implementation steps discussed the in the previous section will also require funding. This includes funding for the further development of designs for the Pilot Project and subsequent near- and long-term improvements. Additional funding is needed for the comprehensive evaluation of the Pilot Project, the environmental clearance of the envisioned improvements, and the preparation of preliminary and final engineering drawings and documents.

The Funding Strategy (***Section 4.3***) provides an overview of potential funding sources and their suitability for serving as a funding source for capital costs and costs associated with the above-mentioned planning, design, and evaluation steps.

4.3 Locally Feasible Financing Strategies

With consideration to the phased implementation strategy presented above, this section identifies probable sources of near- and long-term funding to construct Southern Blackstone improvements. Funding strategies to implement the concept design will require accessing a variety of revenue sources to further project design and engineering, construct a Pilot Project, and effect the ultimate improvements. Funding source availability will vary based on project phase – outcomes of the Pilot Project and potential other concept tests phases may contribute to corridor revitalization activity that generates additional long-term funding and financing opportunities. The funding strategy will therefore require a committed near-term effort to securing grant and other funding for early improvements, as well as near-term implementation of funding and financing mechanisms that will generate longer-term funding for the ultimate improvements as the corridor revitalizes.

The sections below identify the prevailing funding opportunities for the Southern Blackstone Smart Mobility Project, based on program criteria, funding availability and accessibility, revenue potential, and implementation viability. Sources identified below are focused primarily on funding for future planning, design and construction of capital facilities. The overall financing and revitalization strategy for Blackstone Avenue should also evaluate and consider funding and financing strategies available to catalyze new infill development and urban renewal, as corridor improvements, private investment, and public revenue availability are indelibly linked, creating a self-perpetuating cycle of investment, revenues, and improvements.

Federal, State and Regional Grant Funding Sources

Federal, state and regional grant funding programs provide the primary source of funding for many transportation planning and capital improvements. Grant funding will be a key source of early phase funding for the Blackstone Avenue improvements. This section details promising grant funding sources with funding objectives aligned with the Blackstone Avenue improvements identified. These programs focus on providing planning, design, and capital funding for roadway, sidewalk, and streetscape improvements as well as other improvements supporting the provision of multimodal transportation infrastructure, improving safety, mobility and access.

Active Transportation Program

The State Department of Transportation administers the Active Transportation Program (ATP), which consolidates existing federal and state transportation programs, including the Transportation Alternatives Program, Bicycle Transportation Account, and State Safe Routes to School, into a single program.

Eligible projects include those that encourage increasing the proportion of trips by biking and walking, increasing safety and mobility for non-motorized users, advancing the active transportation efforts of regional agencies to achieve greenhouse gas reduction goals, enhancing public health, ensuring that disadvantaged communities fully share the benefits of the program, and providing a broad spectrum of projects to benefit many types of active transportation users.

ATP funds are distributed into 3 separate components: the statewide competitive program, the small urban and rural competitive program, and the large urbanized area competitive program. The large urbanized area competitive program, known as the Regional Competitive ATP, is managed by the Metropolitan Planning Organization (MPO). The Fresno Council of Governments (Fresno COG), in its role as MPO, programs funds received through the Regional Competitive ATP. The Regional Competitive ATP was originally funded at approximately $123 million per year and the Road Repair and Accountability Act of 2017 (SB 1) added approximately $100 million per year in available funds for the ATP. The current funding available at the Regional level is approximately $4-5 million.

Project applications for both the Regional Competitive ATP and the statewide competitive program are first submitted at the State level and then the Regional funds are processed by Fresno COG, with those projects not selected for programming in the statewide competition considered for regional funds. The funding cycle occurs every two years with a historical funding about of approximately $4.7 million for the Region. The typical funding amount per project is approximately $700,000. Applicants are given roughly 10-12 weeks to submit their project.

Fresno COG ATP guidelines recommend project applications seek funding awards of $1.5 million or less per project, and do not have matching fund requirements. Proposed project are evaluated with regard to the stated goals of the ATP:

- Increase the proportion of trips accomplished by biking and walking
- Increase the safety and mobility of non-motorized users.
- Advance the active transportation efforts of regional agencies to achieve greenhouse gas reduction goals.
- Enhance public health, including reduction of childhood obesity through the use of programs including, but not limited to, projects eligible for Safe Routes to School Program funding.
- Ensure that disadvantaged communities fully share in the benefits of the program.
- Provide a broad spectrum of projects to benefit many types of active transportation users.

Surface Transportation Block Grant Program

The Fresno COG, in its role as MPO, also programs federal transportation revenues received by the Fresno Region through the Surface Transportation Block Grant (STBG) Program, formerly the Regional Surface Transportation Program (RSTP). Among other uses, flexible funds available through this program may be used to improve pedestrian, bicycle, and transit infrastructure. The Fresno COG STBG program focuses on funding projects that emphasize Existing System Preservation. Other important factors include projects that promote the following objectives:

- System Integration and Connectivity;
- Safety and Security;
- Accessibility, Mobility; and Efficiency;
- Energy Conservation;
- Environmental Protection; and
- Support for Economic Development Activities.

Eligible costs include preliminary engineering, right-of-way acquisition, capital costs, and construction costs associated with eligible projects. Local agencies may submit a maximum of 10 projects for consideration and must demonstrate dedicated and available matching funds.

The current funding available at the Federal level is approximately $11-12 billion with the Fresno Region receiving approximately $28.0 million each two-year funding cycle. Regionally, the typical funding amount per project is approximately $1.3 million. Applicants are given roughly 7-8 weeks to submit their project.

Congestion Mitigation & Air Quality Improvement Program

Fresno COG also programs federal funds received via the Congestion Mitigation & Air Quality Improvement (CMAQ) Program, which funds transportation projects that improve or maintain air quality by reducing transportation associated emissions. For CMAQ funding eligibility, the project must be included in the Regional Transportation Plan and Transportation Improvement Plan, and funding may be used for capital investments in transportation infrastructure and congestion relief efforts, including transit improvements, traffic flow improvements, traffic signal improvements and pedestrian/bicycle improvements. Eligible costs include preliminary engineering, right-of-way acquisition, capital costs, and construction costs associated with eligible projects.

The current funding available at the Federal level is approximately $2.3-2.5 billion with the Fresno Region receiving approximately $20.8 million each two-year funding cycle. At the Regional level, historical funding per project has ranged from $150,000 up to $3.5 million. Applicants are given roughly 8-10 weeks to submit their project.

Highway Safety Improvement Program

HSIP is a core Federal-aid program with the purpose to achieve a significant reduction in traffic fatalities and serious injuries on all public roads. The program aims to improve pedestrian and bicycle safety, install vehicle-to-infrastructure communication equipment, pedestrian hybrid beacons, roadways that provide separation between pedestrians and motor vehicles, and other physical infrastructure.

HSIP funds must be used for safety projects that are consistent with the State's strategic highways safety plan and that correct or improve a hazardous road location or feature or address a highway safety problem.

The current funding available at the Federal level is approximately $2.2-2.4 billion with the State of California receiving $182 million for 221 projects during the last funding cycle, which ended in December 2018. The historical funding averages approximately $933,000 per project.

Strategic Growth Council Affordable Housing and Sustainable Communities Program

The Strategic Growth Council (SGC) Affordable Housing and Sustainable Communities (AHSC) Program funds land-use, housing, transportation, and land preservation projects to support infill and compact development that reduce greenhouse gas emissions. The AHSC Program will assist project areas by providing grants and/or loans, or any combination thereof, that will achieve GHG emissions reductions and benefit disadvantaged communities through increasing accessibility of affordable housing, employment centers, and key destinations via low-carbon transportation resulting in fewer vehicle miles traveled through shortened or reduced trip length or mode shift from Single Occupancy Vehicle use to transit, bicycling, or walking.

Challenges associated with AHSC funding include the requirement that projects achieve full environmental clearance prior to applying for funds as well as questions regarding how the deployment of AHSC funds for infrastructure may trigger prevailing wage requirements for private sector development projects.

In California the historical funding averages approximately $6.2 million per Transportation Infrastructure projects. The funding cycle occurs annually with current applications due February 11, 2019; funds will be awarded summer 2019.

Measure C

In November 2006, Fresno County voters authorized an extension of the Measure C program, continuing a half cent retail transaction and use tax from July 1, 2007 through June 30, 2027. The Measure C extension is estimated to provide over $1.7 billion in new transportation funding sources. Measure C implementation is overseen by the Fresno County Transportation Authority (FCTA), with Fresno COG providing planning and implementation support and preparing a plan for the sales tax revenue expenditures. Over the 20 year extension timeframe, the City is anticipated to receive over $260 million in local transportation funds, or approximately $13 million annually. The City has discretion in terms of how those funds are allocated, within general program parameters and project reporting requirements. Improvements to Blackstone Avenue may be eligible for funding from several Measure C programs and subprograms, including the following categories:

- Local Transportation Program
  - *Flexible Revenues Subprogram*. Approximately 15 percent of Measure C revenues are provided to local agencies for discretionary use on needed transportation improvements.
  - *Class I Facilities Subprogram.* Approximately 3 percent of Measure C funding is available for significant capital improvements to the Class I facility system.
  - *Class II, III, and IV Facilities.* Approximately 1 percent of Measure C funds are available to fund significant capital improvements to the existing and planned bicycle facilities and systems.
- Environmental Enhancement Program
  - *TOD Subprogram*. Funds project that reduce vehicle trips, improve air quality, and provide access to physical activity. There are three types of projects funded to include: 1) transportation improvements to transit facilities, 2) project planning funds for station area plans, transit corridor specific plans, or other TOD specific plans, and 3) housing infill incentive programs.

In addition, upon Measure C's sunset in 2027, certain programs and subprograms may have residual revenues that could be used to fund other improvements. This revenue repositioning may require an amendment to the Measure C expenditure plan.

Measure P

On July 18, 2018, the Fresno City Clerk received an Initiative Petition proposing the Fresno Clean and Safe Neighborhood Parks Tax Initiative. The initiative is currently on the ballot for November 6, 2018. The ordinance proposes a 3/8 percent sale and use tax within the City of Fresno for a period of 30 years. It is expected that the ordinance will raise approximately $37.5 million annually.

If approved, the annual funds will be used in the following ways:

- $17.25 million (46 percent) on maintaining clean and safe parks;
- $7.9 million (21 percent) on new parks and recreational activities;
- $3.2 million (8.5 percent) on youth and senior recreation, after-school programs, and job training;
- $4.2 million (11.25 percent) on improved walking and biking trails, the San Joaquin River Parkway, and beautification of streets; and
- $4.5 million (12 percent) on expanded access to arts and culture.

Measure P will create the Parks, Recreation, and Arts Commission, which will guarantee that any funding raised through the measure will only be spent on the intended purposes and stays local to benefit the community. The Commission will consist of nine members who are appointed by the Mayor and confirmed by the City Council. The Commission will be responsible for issuing an annual report on expenditures, tracking progress on outcomes over time, holding public hearings on proposed expenditures and budgets, and making recommendations to the City Council for funding. Funds issued by the Commission cannot be repurposed for other uses.

Regional Sustainable Infrastructure (Planning Only)

Administered by Fresno COG, the purpose of the Regional Sustainable Infrastructure Planning Grant Program is to encourage local and regional multimodal transportation and land use planning that furthers the region's SCS and contributes to the State's GHG reduction targets. With funding derived from the Road Repair and Accountability Act of 2017, the program is intended to support and implement the Regional Transportation Plan (RTP) Sustainable Communities Strategies (SCS). Applications for planning funds may be submitted by Fresno COG member agencies, transit agencies, or Native American Tribal Governments, and may be submitted in partnership with Non-Profit Organizations and Community Based Organizations. Eligible grant-funded activities include data gathering and analysis; planning consultants; conceptual drawings and design; community surveys, meetings, charrettes, focus groups; bilingual/translation services; and community and stakeholder advisory groups.

San Joaquin Valley Air Pollution Control District Bikeway Incentive Program

The purpose of the Bikeway Incentive Program is to fund the construction of new bikeway projects to promote clean air through the development of widespread, interconnected network of bike paths, lanes or routes. In addition, the Program aims to improve the general safety conditions for commuter bicyclists for the benefit of commute bicycling.

There are three eligible project types for which funding may be allocated:

- Class I Bikeway: Bike Path
  - The bikeway provides a completely separated right of way for the exclusive use of bicycles and pedestrians. Up to $150,000 of funding may be awarded.
- Class II Bikeway: Bike Lane
  - The bikeway provides a striped lane for one-way bike travel on a street or highway. Up to $100,000 of funding may be awarded.
- Class III Bikeway: Bike Route
  - The bikeway provides for shared use with pedestrians or motor vehicle traffic. This includes items such as shared lane markers, bike boulevards, etc. up to $100,000 of funding may be awarded.

Programs are considered for funding on a first-come, first-serve basis until all Program funds are exhausted. In order to be considered to receive funding, the proposed project must be located within the SJVAPCD boundaries. The bikeway must reduce Vehicle Miles Traveled, single occupancy vehicle travel, and/or potential vehicle trip replacements needs to be included with the application submission.

Local Funding Sources

Subject to a vote, cities and counties can impose a variety of taxes to fund infrastructure. For example, local sales and property taxes, transient occupancy taxes, utility user taxes, and real estate transfer taxes all can be created or increased for this purpose. These tax measures, however, are subject to Citywide voter approval, and are unlikely sources of funding for localized improvements.

Through the formation of special benefit districts, however, the City has opportunities to generate revenues specifically in support of corridor improvements and services. Formation of these districts and approval of special benefit assessments are subject to property owner vote, but revenues generated are invested directly in service and improvements in the district, offering a "return-to-source" funding technique that may generate needed support. The special benefit districts identified below offer key opportunities to generate revenues for capital improvements as well as services that may improve the development environment and ability for the corridor to attract additional investment.

Property and Business Based Improvement District (PBID)

A Property and Business Based Improvement District (PBID) places a special assessment on property within the district boundaries to fund specific services and improvements within the district. Funds collected by the local government are then directed to the PBID, which is operated by a nonprofit entity formed by district property owners. Revenues are commonly used to augment district services, e.g. sanitation, security, marketing and economic development initiatives, but can also be used to fund small- and large-scale capital improvements. Improvements may also be financed via issuance of bond debt supported by benefit assessments.

The formation process for a PBID and special assessment levy requires voter approval and typically requires up to 12 months. District proponents (typically representatives of District business and property owners) will need to prepare a Management Plan identifying the district boundaries, assessment rates and methodology, activities and budget. The Management Plan is then submitted to the City Council, and must be accompanied by a petition signed by property owners representing at least 50 percent of the proposed assessment value. District formation then follows a Proposition 218 compliant balloting process, whereby property owners have the opportunity to object to district formation. If fewer than 50 percent of property owners (as weighted by assessment valuation) object, the district is approved.

Multifamily Improvement District

Multifamily Improvement District law is modeled on PBID enabling statutes, but focus on providing services to benefit apartments, condominiums, mobile home parks, and other high density residential uses. These types of districts are most commonly used in disadvantaged communities to augment existing services and promote activities beneficial to the district. MID assessments may pay for a variety of activities and improvements, including supplemental security services and improvements, parking, sidewalks, street lighting, and landscaping. Improvements may also be financed via issuance of bond debt supported by benefit assessments.

Formation requires a petition signed by two-thirds of the property or business owners within the proposed district and a detailed Management Plan identifying the proposed assessment methodology and other pertinent elements of the proposed District. If approved by a two-thirds majority via a weighted ballot election, the MID will be in place for 5 years and can be renewed for successive 10 year periods.

Development-Based Funding Sources

With local authority over land use, California cities have a variety of tools at their disposal to exact financial contributions from property owners and developers in exchange for project entitlements. As development occurs along the corridor, the City may deploy these tools to secure funding for capital improvements benefitting those projects. It is important to note, however, that efforts to revitalize the Blackstone Avenue corridor are limited by financial feasibility constraints, and projects may require additional financial incentives and public contributions. In the near term, adding costs to proposed development projects via development exactions, impact fees, and other tools may therefore be counter-productive.

However, to the extent that development-based mechanisms can be deployed to capture incremental revenues generated by corridor revitalization, those revenues can be reinvested in the district, generating additional public improvement value that stimulates further investment and potentially improving the financial feasibility outlook for new development. With these considerations and the financing tools and techniques described below, the City can craft a phased and strategic approach to securing long term funding for corridor improvements utilizing development-based funding sources in concert with other funding opportunities.

Development Impact Fees

A development impact fee is an ordinance-based, one-time charge on new development designed to cover a "proportional-share" of the total capital cost of necessary public infrastructure and facilities. The creation and collection of impact fees are allowed under AB 1600 as codified in California Government Code Section 66000, known as the Mitigation Fee Act. This law stipulates that only the portion of costs attributable to new development can be included in the fee. Consequently, impact fees commonly are only one of many sources used to finance a city's needed infrastructure improvements. Fees can be charged on a jurisdiction-wide basis or for a particular sub-area of the jurisdiction (such as a specific plan area).

The key limitation of development impact fees is the timing of funding. Infrastructure often is needed "up-front" while fees are paid over time as development occurs. This means that other funding or financing methods are needed to close the timing gap. Fees also are irregular, as they depend on development activity that varies with economic conditions. Finally, significant funding from development impact fees requires significant growth which may be limited by market and development feasibility conditions.

The City's current Major Streets Impact Fee does not include funding for Southern Blackstone improvements. The City may consider including all or a portion of these improvements as part of a future update to the MSIF (subject to nexus findings regarding Citywide benefits associated with the improvements) or implement a subarea fee charged to a subset of benefitting development along the Southern Blackstone Corridor.

The City also charges a Traffic Signal Mitigation Impact (TSMI) fee to mitigate traffic impacts through the funding of traffic signal improvements accommodating new development. The TMSI includes funding for intersection improvements at Blackstone Avenue and Floradora Street as well as Blackstone Avenue and Webster Street. Each intersection improvement assumes $372,000 in TSMI funding.

Value Capture Funding Tools

The term "value capture" refers to a variety of funding tools and techniques that jurisdictions may employ to participate in the financial benefits conveyed by publicly supported infrastructure investments. Typically, when the public sector creates value through infrastructure investment or other means, landowners enjoy a financial gain. Value capture occurs when the public sector reclaims some of the value created by its activities. The term is particularly applicable to transportation improvements that provide improved market access, new development opportunities, and other economic value enhancements beyond what would exist under normal or baseline conditions.

The City could use one or a combination of the following inter-related tools to accomplish this:

- Development Agreements: A Development Agreement (DA) is a voluntary and legally binding agreement between a local government and developer authorized by State statute (Government Code Section 65864 et seq.). These contractual agreements allow developers to secure entitlements for a particular project that would not be obtainable through the normal conditions or zoning, in exchange for special contributions, generally including infrastructure improvements, amenities, or other

community benefits. DAs are entirely discretionary on the part of the applicant and local government (there is no nexus requirement) and must be individually adopted by local ordinance.

- Community Benefit Incentive Zoning (CBIZ): Community Benefit Incentive Zoning (CBIZ) programs can provide a more systematic and policy based approach to "value capture". Specifically, under these programs cities configure their land use regulations in a manner that can provide incentives for additional private investments in local infrastructure and community benefits in exchange for entitlements beyond what would otherwise by obtainable. With development intensity currently constrained by development costs relative to revenue potential, incentive zoning programs may have limited utility in the City over the short term.
- Development-Based Public-Private Partnerships (P3): A P3 is similar to a DA but often includes more specificity, collaboration, and risk sharing among public and private participants. Up front investments in public infrastructure may be reimbursed through various revenue sharing mechanisms via a variety of potential deal structures and mechanisms.

With respect to value capture funding tools, it is important to consider overarching local land use and economic development policy objectives. Value capture funding tools largely rely upon recouping or financing public infrastructure investments through extracting funds from development projects, commensurate with the private sector value increase enjoyed courtesy of the public investment.

In certain cases, such as the Blackstone Avenue corridor, prevailing local government objectives are often the revitalization of a blighted neighborhood through community improvements and attracting private investment interest. In these circumstances, public infrastructure investments are often made to stimulate private sector investment interest, essentially providing public investments that help to make investment opportunities more attractive. In these cases, near-term attempts to secure participation in the cost of public investments may interfere with the stimulus effects of the improvements. Over the longer term, however, as revitalization efforts take hold, value capture techniques may present a more viable approach to securing private sector cost participation.

Tax Increment Financing

The 2012 dissolution of Redevelopment Agencies eliminated a key tax increment financing vehicle that local governments had long relied upon to fund infrastructure and revitalize communities. Under Redevelopment, tax increment financing allowed local jurisdictions to capture incremental increases in property tax revenues generated within a defined Redevelopment Area and reinvest those revenues in Redevelopment Area improvements.

New forms of tax increment financing have since emerged; however these mechanisms are generally more limited, requiring affected taxing entities to "opt-in" in order to capture their share of property tax revenue increases. Effectively, these provisions limit tax increment revenues available for funding project infrastructure and other eligible costs to the share of property tax revenues received by the local jurisdiction (typically around 20 percent of total property taxes).

The incidence or financial burden, therefore, of emerging tax increment financing mechanisms rests on the local taxing jurisdiction(s) that forego property tax revenue and dedicate these funds to infrastructure or other eligible investments. In other words, dedicating these tax revenues to infrastructure limits funding for new public services costs associated with development.

Another key limitation of all tax increment financing mechanisms is the timing of revenue generation. Property tax increases resulting from revitalization, investment, and new development may take a long time to materialize. For this reason, it is critical that tax increment financing techniques be coupled with

near-term funding approaches (such as grant funding opportunities). To the extent that Southern Blackstone improvements would help to stimulate investment in the corridor, property tax gains could be accelerated, thereby generating a longer-term funding source for ultimate corridor improvements.

Enhanced Infrastructure Financing District

Enhanced Infrastructure Financing Districts (EIFDs) provide an emerging form of tax increment financing available to local public entities in California. Cities and other local agencies may establish an EIFD for a given project or geographic area in order to capture incremental increases in property tax revenue from future development and assessed value appreciation. In the absence of the EIFD, this revenue would accrue to the city's General Fund (or other property-taxing entity revenue fund). Unlike prior TIF/Redevelopment law in California, EIFDs do not provide access to property tax revenue beyond the share agreed to by participating jurisdictions (e.g., City and County).

The establishment of an EIFD requires approval by every local taxing entity that will contribute its property tax increment. EIFDs require 55 percent voter approval to issue bonds, but may be formed and gain access to unlevered (debt free) revenue without a vote.

Revenues generated by an EIFD may be used to provide funding and financing for a broad range of infrastructure projects, provided those projects have a useful life of 15 years and are of "community-wide" significance. Capital improvements do not have to be located within the boundaries of the district but must have a "tangible connection" to the district.

Community Revitalization and Investment Authorities

Local agencies (a city, county, or a special district - or any combination of these via entering a joint power agreement) may establish a Community Revitalization and Investment Authority (CRIA) to revitalize disadvantaged communities by capturing incremental increases in property tax revenues to fund infrastructure improvements and upgrades; economic development activities; and affordable housing. Based in part on the former community redevelopment law, the revitalization area comprising a CRIA must meet the following criteria:

1. Areas where not less than 80 percent of the land contains census tracts or census block groups meet both of these conditions:
    a. An annual median household income that is less than 80% of the statewide annual median income; and
    b. Three of four following conditions:
        i. Non-seasonal unemployment at least 3 percent higher than statewide average.
        ii. Crime rates at least 5 percent higher than statewide median.
        iii. Deteriorated or inadequate infrastructure, and
        iv. Deteriorated commercial or residential structures.
2. A former military base that is principally characterized by deteriorated or inadequate infrastructure or structures

Formation of a CRIA is subject to a public hearing process and protest proceedings, but if approved, is authorized to issue debt without voter approval. Once established, CRIAs are authorized to use tax increment revenues to fund (without limit) infrastructure improvements, improvements to existing buildings, affordable housing, brownfield remediation, and acquire and transfer property. Notably, a CRIA has the authority to acquire property under eminent domain.

Formation of a CRIA may therefore offer an opportunity to utilize tax increment revenues to directly fund Southern Blackstone improvements as well as stimulate revitalization of the corridor generating additional opportunities to secure development-based funding sources.

Industry-Based Public-Private Partnership

As the City considers regulations governing bike share programs, an opportunity may exist to partner with private industry to effect active transportation improvements in exchange for reduced regulatory burden or increased market access. In addition to licensing and regulatory burden relief, private companies would benefit by creating additional markets through the completion of active transportation improvements that facilitate use of their products in areas that otherwise would not accommodate these modes of travel.

Blackstone Avenue may prove an ideal environment for a test case or pilot program – under current conditions; Blackstone Avenue does not offer a safe bicycle and pedestrian environment. An opportunity may exist, however, to generate demand for active modes of transportation, particularly in the Shields to McKinley area. Targeted bicycle and pedestrian improvements in this area could provide key active modes connections for Fresno City College students to retail and transit services offered at the Manchester Center, and private mobility companies may be willing to participate in funding initial, interim improvements. As part of an overall regulatory framework, the City should explore various approaches to partnering with private mobility companies to invest in infrastructure in exchange for the opportunity to provide services along the corridor.

Funding Conclusions and Recommendations

With consideration to the various funding approaches and sources described above, this section offers near-term recommendations to secure funding for initial phases and to establish longer-term funding mechanisms that may help to fund the ultimate corridor improvements:

6. Pursue Grant Funding. With a primary focus on Fresno COG administered programs, the City should aggressively pursue all viable sources of grant funding to secure funds for additional planning efforts as well as capital improvements.
7. Engage with industry representatives to evaluate the potential for industry-based public-private partnership. The City should immediately engage with private sector active transportation and e-scooter providers to determine if private sector participation in funding active transportation improvements in exchange for regulatory relief or market access is a viable approach.
8. Evaluate Feasibility of EIFD/CRIA formation. In the near term, the City should conduct additional analysis to evaluate the property tax increment revenue generation potential of an EIFD or CRIA district as well as the overall feasibility of district formation. The revenue-generating potential of these mechanisms is a longer-term prospect, as it may take many years for property tax revenue growth to reach significant threshold levels. The City should, however, consider and evaluate if implementation of these tax increment mechanisms should occur in the nearer term, such that the district can capture property value increases associated with current and near term revitalization activities (e.g., Manchester Center).
9. Consider PBID or Multifamily Improvement District Formation. Working with existing community development and outreach infrastructure and organizations, the City should evaluate the viability and likelihood of successful implementation of a PBID, Multifamily Improvement District, or other similar community benefit district. These types of districts typically fund services and community revitalization efforts that may stimulate additional investment and associated development-based revenues, but funds may also be used to fund capital improvements. Outreach to the community should explore stakeholder preferences with regard to how assessment revenues are programmed.

10. **Develop a comprehensive strategy to revitalizing the Blackstone Avenue Corridor.** Corridor improvements and increased private investment activity and revitalization are mutually beneficial and have the potential to generate a self-reinforcing cycle of investment and public improvements. New market rate development activity can generate revenues to support Blackstone Corridor improvements, and investments in the public realm create a more attractive development environment. With this synergy in mind, the City should establish a comprehensive economic development, community revitalization, and land use planning strategy for the corridor that identifies additional approaches, mechanisms, and partnerships to catalyze private investment and urban renewal.

These recommendations reflect near term actions that may assist the City to implement the Southern Blackstone Smart Mobility Project. Over the longer term, the viability of additional funding approaches (such as development impact fees or value capture mechanism) may improve as revitalization activity takes hold. The City should continually reevaluate viable funding mechanisms and catalytic approaches to funding Blackstone Corridor improvements

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Appendix

High-Level Estimates of Probable Costs

Project: Southern Blackstone Avenue Smart Mobility Strategy
Option: **Estimate of Probable Cost for Long-Term Improvements (Typical Block and two adjacent intersections North of Hedges)**
Date: October 30, 2018

I.D	ITEM	Unit of Measure	Unit Cost	Quantity	TOTAL	NOTES
	ROADWAY IMPROVEMENTS					
1	Roadway Removal	CYD	$ 20.00	1700	$ 34,000	Assuming removal of a 12-inch deep section of roadway
2	New Roadway Construction	SF	$ 6.00	45000	$ 270,000	Assuming 32 composite blocks (270 feet long); 4 major intersections and 15.5 minor intersections
3	Curb and Gutter	LF	$ 25.00	1000	$ 25,000	
4	Relocate Drain Inlet	EA	$ 6,000.00	6	$ 36,000	Provided value is approxinately the cost to remove and install one inlet and assumes a nominal lenc
5	Median Curb (no gutter pan)	LF	$ 20.00	1100	$ 22,000	
	ROADWAY IMPROVEMENTS TOTAL				**$ 387,000**	
	STRIPING IMPROVEMENTS					
6	Lane Striping, Pavement Legends	SF	$ 4.50	500	$ 2,250	
7	Crosswalk Striping	SF	$ 4.50	5000	$ 22,500	
8	Green Paint in Bikeway	SF	$ 5.00	3000	$ 15,000	Assuming MMA with corrundum per city standards.
	STRIPING IMPROVEMENTS TOTAL				**$ 39,750**	
	SIDEWALK AND MEDIAN HARDSCAPE					
9	Concrete Sidewalk and Raised Bikeway	SF	$ 7.00	9000	$ 63,000	
10	Curb Ramps	EA	$ 4,000.00	16	$ 64,000	Assumes only the ramp; not any other sidewalk outside of the ramp.
11	Colored Concrete Pavement (Sidewalk)	SF	$ 8.00	3300	$ 26,400	
12	Stamped and/or Colored Concrete Pavement (Median)	SF	$ 8.00	4400	$ 35,200	
	SIDEWALK AND MEDIAN HARDSCAPE TOTAL				**$ 188,600**	
	SIDEWALK AND MEDIAN LANDSCAPING					
13	Soil Preparation and Fine Grading	SF	$ 15.00	3100	$ 46,500	
14	Planting (drought tolerant grasses and groundcovers)	SF	$ 2.50	3100	$ 7,750	
15	Mulch	SF	$ 3.00	3100	$ 9,300	
16	Tree - 36-inch box (planted/deep watering tube)	EA	$ 1,000.00	25	$ 25,000	
17	Irrigation System (WITHOUT WATER METER)	SF	$ 12.00	3100	$ 37,200	
	SIDEWALK AND MEDIAN LANDSCAPING TOTAL				**$ 125,750**	
	OTHER IMPROVEMENTS					
18	Relocate Existing Roadway Light Fixture to follow New Curb Line	EA	$ 2,000.00	6	$ 12,000	Assumes street light pole every 90 feet
19	Relocate BRT Stop (Shelter and Amenities) to new location	EA	$ 60,000.00	0	$ -	Per FAX.
20	New Decorative Pedestrian-Scale Light Fixture (16 to 18-foot tall)	EA	$ 5,000.00	18	$ 90,000	
	OTHER IMPROVEMENTS TOTAL				**$ 102,000**	
	SIGNAL IMPROVEMENTS					
21	HAWK Signal	EA	$ 200,000.00	1	$ 200,000	
22	Full Traffic Signal (Complete)	EA	$ 315,000.00	0	$ -	Only assumes the traffic signal cost of arterial/arterial intersection. No hard roadway improvements
23	RRFB (Complete per Crosswalk)	EA	$ 12,500.00	0	$ -	
24	Reconfigure Existing Traffic Signal to match new Intersection Geometry	EA	$ 15,000.00	1	$ 15,000	Cost Assume only detectors are replaced
	SIGNAL IMPROVEMENTS TOTAL				**$ 215,000**	

	SUBTOTAL	**$ 1,058,100**
35%	Contingency	$ 370,335
	TOTAL CONSTRUCTION	**$ 1,429,000**
3%	Scoping	$ 42,870
5%	Environmental (CEQA)	$ 71,450
15%	Design	$ 214,350
15%	Construction Eng/Admin	$ 214,350
	TOTAL COST ESTIMATE	**$ 2,000,000**

Project: Southern Blackstone Avenue Smart Mobility Strategy
Option: **Estimate of Probable Cost for Long-Term Improvements (Typical Block and two adjacent intersections South of Hedges)**
Date: October 30, 2018

I.D	ITEM	Unit of Measure	Unit Cost	Quantity	TOTAL	NOTES
	ROADWAY IMPROVEMENTS					
1	Roadway Removal	CYD	$ 20.00	1100	$ 22,000	Assuming removal of a 12-inch deep section of roadway
2	New Roadway Construction	SF	$ 6.00	29000	$ 174,000	Assuming 32 composite blocks (270 feet long); 2 major intersections and 10 minor intersections
3	Curb and Gutter	LF	$ 25.00	900	$ 22,500	
4	Relocate Drain Inlet	EA	$ 6,000.00	4	$ 24,000	Provided value is approxinately the cost to remove and install one inlet and assumes a nominal lenc
5	Median Curb (no gutter pan)	LF	$ 20.00	400	$ 8,000	
	ROADWAY IMPROVEMENTS TOTAL				**$ 250,500**	
	STRIPING IMPROVEMENTS					
6	Lane Striping, Pavement Legends	SF	$ 4.50	300	$ 1,350	
7	Crosswalk Striping	SF	$ 4.50	2100	$ 9,450	
8	Green Paint in Bikeway	SF	$ 5.00	2600	$ 13,000	Assuming MMA with corrundum per city standards.
	STRIPING IMPROVEMENTS TOTAL				**$ 23,800**	
	SIDEWALK AND MEDIAN HARDSCAPE					
9	Concrete Sidewalk and Raised Bikeway	SF	$ 7.00	5000	$ 35,000	
10	Curb Ramps	EA	$ 4,000.00	16	$ 64,000	Assumes only the ramp; not any other sidewalk outside of the ramp.
11	Colored Concrete Pavement (Sidewalk)	SF	$ 8.00	3400	$ 27,200	
12	Stamped and/or Colored Concrete Pavement (Median)	SF	$ 8.00	600	$ 4,800	
	SIDEWALK AND MEDIAN HARDSCAPE TOTAL				**$ 131,000**	
	SIDEWALK AND MEDIAN LANDSCAPING					
13	Soil Preparation and Fine Grading	SF	$ 15.00	2000	$ 30,000	
14	Planting (drought tolerant grasses and groundcovers)	SF	$ 2.50	2000	$ 5,000	
15	Mulch	SF	$ 3.00	2000	$ 6,000	
16	Tree - 36-inch box (planted/deep watering tube)	EA	$ 1,000.00	27	$ 27,000	
17	Irrigation System (WITHOUT WATER METER)	SF	$ 12.00	2000	$ 24,000	
	SIDEWALK AND MEDIAN LANDSCAPING TOTAL				**$ 92,000**	
	OTHER IMPROVEMENTS					
18	Relocate Existing Roadway Light Fixture to follow New Curb Line	EA	$ 2,000.00	6	$ 12,000	Assumes street light pole every 90 feet
19	Relocate BRT Stop (Shelter and Amenities) to new location	EA	$ 60,000.00	1	$ 60,000	Per FAX.
20	New Decorative Pedestrian-Scale Light Fixture (16 to 18-foot tall)	EA	$ 5,000.00	18	$ 90,000	
	OTHER IMPROVEMENTS TOTAL				**$ 162,000**	
	SIGNAL IMPROVEMENTS					
21	HAWK Signal	EA	$ 200,000.00	0	$ -	
22	Full Traffic Signal (Complete)	EA	$ 315,000.00	0	$ -	Only assumes the traffic signal cost of arterial/arterial intersection. No hard roadway improvements
23	RRFB (Complete per Crosswalk)	EA	$ 12,500.00	1	$ 12,500	
24	Reconfigure Existing Traffic Signal to match new Intersection Geometry	EA	$ 15,000.00	0	$ -	Cost Assume only detectors are replaced
	SIGNAL IMPROVEMENTS TOTAL				**$ 12,500**	

	SUBTOTAL	**$ 671,800**
35%	Contingency	$ 235,130
	TOTAL CONSTRUCTION	**$ 907,000**
3%	Scoping	$ 27,210
5%	Environmental (CEQA)	$ 45,350
15%	Design	$ 136,050
15%	Construction Eng/Admin	$ 136,050
	TOTAL COST ESTIMATE	**$ 1,300,000**

Project: Southern Blackstone Avenue Smart Mobility Strategy
Option: **Estimate of Probable Cost for Long-Term Improvements (Total for North of Hedges)**
Date: October 30, 2018

I.D	ITEM	Unit of Measure	Unit Cost	Quantity	TOTAL	NOTES
	ROADWAY IMPROVEMENTS					
1	Roadway Removal	CYD	$ 20.00	34000	$ 680,000	Assuming removal of a 12-inch deep section of roadway
2	New Roadway Construction	SF	$ 6.00	900000	$ 5,400,000	Assuming 32 composite blocks (270 feet long); 4 major intersections and 15.5 minor intersections
3	Curb and Gutter	LF	$ 25.00	23000	$ 575,000	
4	Relocate Drain Inlet	EA	$ 6,000.00	50	$ 300,000	Provided value is approxinately the cost to remove and install one inlet and assumes a nominal lenc
5	Median Curb (no gutter pan)	LF	$ 20.00	23000	$ 460,000	
	ROADWAY IMPROVEMENTS TOTAL				**$ 7,415,000**	
	STRIPING IMPROVEMENTS					
6	Lane Striping, Pavement Legends	SF	$ 4.50	8000	$ 36,000	
7	Crosswalk Striping	SF	$ 4.50	38000	$ 171,000	
8	Green Paint in Bikeway	SF	$ 5.00	35000	$ 175,000	Assuming MMA with corrundum per city standards.
	STRIPING IMPROVEMENTS TOTAL				**$ 382,000**	
	SIDEWALK AND MEDIAN HARDSCAPE					
9	Concrete Sidewalk and Raised Bikeway	SF	$ 7.00	254000	$ 1,778,000	
10	Curb Ramps	EA	$ 4,000.00	156	$ 624,000	Assumes only the ramp; not any other sidewalk outside of the ramp.
11	Colored Concrete Pavement (Sidewalk)	SF	$ 8.00	104000	$ 832,000	
12	Stamped and/or Colored Concrete Pavement (Median)	SF	$ 8.00	123000	$ 984,000	
	SIDEWALK AND MEDIAN HARDSCAPE TOTAL				**$ 4,218,000**	
	SIDEWALK AND MEDIAN LANDSCAPING					
13	Soil Preparation and Fine Grading	SF	$ 15.00	97000	$ 1,455,000	
14	Planting (drought tolerant grasses and groundcovers)	SF	$ 2.50	97000	$ 242,500	
15	Mulch	SF	$ 3.00	97000	$ 291,000	
16	Tree - 36-inch box (planted/deep watering tube)	EA	$ 1,000.00	800	$ 800,000	
17	Irrigation System (WITHOUT WATER METER)	SF	$ 12.00	97000	$ 1,164,000	
	SIDEWALK AND MEDIAN LANDSCAPING TOTAL				**$ 3,952,500**	
	OTHER IMPROVEMENTS					
18	Relocate Existing Roadway Light Fixture to follow New Curb Line	EA	$ 2,000.00	192	$ 384,000	Assumes street light pole every 90 feet
19	Relocate BRT Stop (Shelter and Amenities) to new location	EA	$ 60,000.00	4	$ 240,000	Per FAX.
20	New Decorative Pedestrian-Scale Light Fixture (16 to 18-foot tall)	EA	$ 5,000.00	398	$ 1,990,000	
	OTHER IMPROVEMENTS TOTAL				**$ 2,614,000**	
	SIGNAL IMPROVEMENTS					
21	HAWK Signal	EA	$ 200,000.00	3	$ 600,000	
22	Full Traffic Signal (Complete)	EA	$ 315,000.00	3	$ 945,000	Only assumes the traffic signal cost of arterial/arterial intersection. No hard roadway improvements
23	RRFB (Complete per Crosswalk)	EA	$ 12,500.00	0	$ -	
24	Reconfigure Existing Traffic Signal to match new Intersection Geometry	EA	$ 15,000.00	16	$ 240,000	Cost Assume only detectors are replaced
	SIGNAL IMPROVEMENTS TOTAL				**$ 1,785,000**	

	SUBTOTAL	**$ 20,366,500**
35%	Contingency	$ 7,128,275
	TOTAL CONSTRUCTION	**$ 27,495,000**
3%	Scoping	$ 824,850
5%	Environmental (CEQA)	$ 1,374,750
15%	Design	$ 4,124,250
15%	Construction Eng/Admin	$ 4,124,250
	TOTAL COST ESTIMATE	**$ 38,000,000**

Project: Southern Blackstone Avenue Smart Mobility Strategy
Option: **Estimate of Probable Cost for Long-Term Improvements (Total for South of Hedges)**
Date: October 30, 2018

I.D	ITEM	Unit of Measure	Unit Cost	Quantity	TOTAL	NOTES
	ROADWAY IMPROVEMENTS					
1	Roadway Removal	CYD	$ 20.00	12000	$ 240,000	Assuming removal of a 12-inch deep section of roadway
2	New Roadway Construction	SF	$ 6.00	300000	$ 1,800,000	Assuming 7*2 composite blocks (270 feet long); 2 major intersections and 10 minor intersections
3	Curb and Gutter	LF	$ 25.00	10000	$ 250,000	
4	Relocate Drain Inlet	EA	$ 6,000.00	30	$ 180,000	Provided value is approxinately the cost to remove and install one inlet and assumes a nominal lenc
5	Median Curb (no gutter pan)	LF	$ 20.00	2000	$ 40,000	
	ROADWAY IMPROVEMENTS TOTAL				**$ 2,510,000**	
	STRIPING IMPROVEMENTS					
6	Lane Striping, Pavement Legends	SF	$ 4.50	3000	$ 13,500	
7	Crosswalk Striping	SF	$ 4.50	13000	$ 58,500	
8	Green Paint in Bikeway	SF	$ 5.00	19000	$ 95,000	Assuming MMA with corrundum per city standards.
	STRIPING IMPROVEMENTS TOTAL				**$ 167,000**	
	SIDEWALK AND MEDIAN HARDSCAPE					
9	Concrete Sidewalk and Raised Bikeway	SF	$ 7.00	118000	$ 826,000	Assuming that the existing sidewalk is not ripped.
10	Curb Ramps	EA	$ 4,000.00	100	$ 400,000	Assumes only the ramp; not any other sidewalk outside of the ramp.
11	Colored Concrete Pavement (Sidewalk)	SF	$ 8.00	48000	$ 384,000	
12	Stamped and/or Colored Concrete Pavement (Median)	SF	$ 8.00	4000	$ 32,000	
	SIDEWALK AND MEDIAN HARDSCAPE TOTAL				**$ 1,642,000**	
	SIDEWALK AND MEDIAN LANDSCAPING					
13	Soil Preparation and Fine Grading	SF	$ 15.00	28000	$ 420,000	
14	Planting (drought tolerant grasses and groundcovers)	SF	$ 2.50	28000	$ 70,000	
15	Mulch	SF	$ 3.00	28000	$ 84,000	
16	Tree - 36-inch box (planted/deep watering tube)	EA	$ 1,000.00	378	$ 378,000	
17	Irrigation System (WITHOUT WATER METER)	SF	$ 12.00	28000	$ 336,000	
	SIDEWALK AND MEDIAN LANDSCAPING TOTAL				**$ 1,288,000**	
	OTHER IMPROVEMENTS					
18	Relocate Existing Roadway Light Fixture to follow New Curb Line	EA	$ 2,000.00	84	$ 168,000	Assumes street light pole every 90 feet
19	Relocate BRT Stop (Shelter and Amenities) to new location	EA	$ 60,000.00	2	$ 120,000	Per FAX.
20	New Decorative Pedestrian-Scale Light Fixture (16 to 18-foot tall)	EA	$ 5,000.00	368	$ 1,840,000	
	OTHER IMPROVEMENTS TOTAL				**$ 2,128,000**	
	SIGNAL IMPROVEMENTS					
21	HAWK Signal	EA	$ 200,000.00	0	$ -	
22	Full Traffic Signal (Complete)	EA	$ 315,000.00	1	$ 315,000	Only assumes the traffic signal cost of arterial/arterial intersection. No hard roadway improvements
23	RRFB (Complete per Crosswalk)	EA	$ 12,500.00	2	$ 25,000	
24	Reconfigure Existing Traffic Signal to match new Intersection Geometry	EA	$ 15,000.00	6	$ 90,000	Cost Assume only detectors are replaced
	SIGNAL IMPROVEMENTS TOTAL				**$ 430,000**	

	SUBTOTAL	**$**	**8,165,000**
35%	Contingency	$	2,857,750
	TOTAL CONSTRUCTION	**$**	**11,023,000**
3%	Scoping	$	330,690
5%	Environmental (CEQA)	$	551,150
15%	Design	$	1,653,450
15%	Construction Eng/Admin	$	1,653,450
	TOTAL COST ESTIMATE	**$**	**15,300,000**

Project: Southern Blackstone Avenue Smart Mobility Strategy
Option: **Estimate of Probable Cost for Near-Term Improvements (Corridor-wide and with Five (5) HAWK Signals)**
Date: October 30, 2018

I.D	ITEM	Unit of Measure	Unit Cost	Quantity	TOTAL	NOTES
	ROADWAY IMPROVEMENTS					
1	Slurry Seal	ELT	$ 400.00	1100	$ 440,000	applied to "erase" existing striping; 1 ELT approximatey covers 1,200 SF
	ROADWAY IMPROVEMENTS TOTAL				**$ 440,000**	
	STRIPING IMPROVEMENTS					
2	Lane, Buffer, Pavement Legend Striping	SF	$ 4.50	40100	$ 180,450	includes: Turn lane, through lane, stop bar, turn arrows, bicycle buffer and pavement legends
3	Crosswalk Striping	SF	$ 4.50	27100	$ 121,950	6 Major intersection and 6.75 minor intersections
4	Solid Paint - Painted Bulb-Outs and Medians	SF	$ 5.00	9000	$ 45,000	13 intersections with crosswalk
5	Solid Paint - Green Paint in Bikeway	SF	$ 5.00	44000	$ 220,000	5 major intersections, 20.5 minor intersections; 17.5 intersection North of Hedges, 8 intersection South of Hedges; 120 driveways, 30' feet each approx, upto Hedges. 34 driveways south of Hedges
	STRIPING IMPROVEMENTS TOTAL				**$ 567,400**	
	VERTICAL SEPARATORS (POSTS ETC.)					
6	Soft-Hit Posts	EA	$ 250.00	2000	$ 500,000	Assuming a 16 feet spacing
	SIDEWALK AND MEDIAN HARDSCAPE TOTAL				**$ 500,000**	
	OTHER IMPROVEMENTS					
7	Banner Kits for Existing Light Fixtures	EA	$ 120.00	180	$ 21,600	Assumes street light pole every 90 feet
8	Temporary Boarding Platform at BRT Stops	EA	$ 55,000.00	6	$ 330,000	
	OTHER IMPROVEMENTS TOTAL				**$ 351,600**	
	SIGNAL IMPROVEMENTS					
9	HAWK Signal	EA	$ 200,000.00	5	$ 1,000,000	per complete intersection
	SIGNAL IMPROVEMENTS TOTAL				**$ 1,000,000**	

	SUBTOTAL	**$ 2,859,000**
25%	Contingency	$ 714,750
	TOTAL CONSTRUCTION	**$ 3,574,000**
3%	Scoping	$ 107,220
5%	Environmental (CEQA)	$ 178,700
15%	Design	$ 536,100
15%	Construction Eng/Admin	$ 536,100
	TOTAL COST ESTIMATE	**$ 5,000,000**

Project: Southern Blackstone Avenue Smart Mobility Strategy
Option: **Estimate of Probable Cost for Near-Term Improvements (Corridor-wide and with NO HAWK Signals)**
Date: October 30, 2018

I.D	ITEM	Unit of Measure	Unit Cost	Quantity	TOTAL	NOTES
	ROADWAY IMPROVEMENTS					
1	Slurry Seal	ELT	$ 400.00	1100	$ 440,000	applied to "erase" existing striping; 1 ELT approximatey covers 1,200 SF
	ROADWAY IMPROVEMENTS TOTAL				**$ 440,000**	
	STRIPING IMPROVEMENTS					
2	Lane, Buffer, Pavement Legend Striping	SF	$ 4.50	40100	$ 180,450	includes: Turn lane, through lane, stop bar, turn arrows, bicycle buffer and pavement legends
3	Crosswalk Striping	SF	$ 4.50	27100	$ 121,950	6 Major intersection and 6.75 minor intersections
4	Solid Paint - Painted Bulb-Outs and Medians	SF	$ 5.00	9000	$ 45,000	13 intersections with crosswalk
5	Solid Paint - Green Paint in Bikeway	SF	$ 5.00	44000	$ 220,000	5 major intersections, 20.5 minor intersections; 17.5 intersection North of Hedges, 8 intersection South of Hedges; 120 driveways, 30' feet each approx, upto Hedges. 34 driveways south of Hedges
	STRIPING IMPROVEMENTS TOTAL				**$ 567,400**	
	VERTICAL SEPARATORS (POSTS ETC.)					
6	Soft-Hit Posts	EA	$ 250.00	2000	$ 500,000	Assuming a 16 feet spacing
	SIDEWALK AND MEDIAN HARDSCAPE TOTAL				**$ 500,000**	
	OTHER IMPROVEMENTS					
7	Banner Kits for Existing Light Fixtures	EA	$ 120.00	180	$ 21,600	Assumes street light pole every 90 feet
8	Temporary Boarding Platform at BRT Stops	EA	$ 55,000.00	6	$ 330,000	
	OTHER IMPROVEMENTS TOTAL				**$ 351,600**	
	SIGNAL IMPROVEMENTS					
9	HAWK Signal	EA	$ 200,000.00	0	$ -	per complete intersection
	SIGNAL IMPROVEMENTS TOTAL				**$ -**	

	SUBTOTAL	**$**	**1,859,000**
25%	Contingency	$	464,750
	TOTAL CONSTRUCTION	**$**	**2,324,000**
3%	Scoping	$	69,720
5%	Environmental (CEQA)	$	116,200
15%	Design	$	348,600
15%	Construction Eng/Admin	$	348,600
	TOTAL COST ESTIMATE	**$**	**3,300,000**

Project: Southern Blackstone Avenue Smart Mobility Strategy
Option: **Estimate of Probable Cost for Near-Term Improvements (Pilot Project Only - Shields to McKinley)**
Date: October 30, 2018

I.D	ITEM	Unit of Measure	Unit Cost	Quantity	TOTAL	NOTES
	ROADWAY IMPROVEMENTS					
1	Slurry Seal	ELT	$ 400.00	400	$ 160,000	applied to "erase" existing sriping; 1 ELT approximatey covers 1,200 SF
	ROADWAY IMPROVEMENTS TOTAL				**$ 160,000**	
	STRIPING IMPROVEMENTS					
2	Lane, Buffer, Pavement Legend Striping	SF	$ 4.50	14200	$ 63,900	includes: Turn lane, through lane, stop bar, turn arrows, bicycle buffer and pavement legends
3	Crosswalk Striping	SF	$ 4.50	9500	$ 42,750	2 Major intersection and 2.5 minor intersections
4	Solid Paint - Painted Bulb-Outs and Medians	SF	$ 5.00	3000	$ 15,000	4.5 intersections with crosswalk
5	Solid Paint - Green Paint in Bikeway	SF	$ 5.00	20000	$ 100,000	2 major intersections, 11 minor intersections; 42 driveways, 30' feet each approx, upto Hedges.
	STRIPING IMPROVEMENTS TOTAL				**$ 221,650**	
	VERTICAL SEPARATORS (POSTS ETC.)					
6	Soft-Hit Posts	EA	$ 250.00	800	$ 200,000	Assuming a 16 feet spacing
	SIDEWALK AND MEDIAN HARDSCAPE TOTAL				**$ 200,000**	
	OTHER IMPROVEMENTS					
7	Banner Kits for Existing Light Fixtures	EA	$ 120.00	70	$ 8,400	Assumes street light pole every 90 feet
8	Temporary Boarding Platform at BRT Stops	EA	$ 55,000.00	4	$ 220,000	
	OTHER IMPROVEMENTS TOTAL				**$ 228,400**	
	SIGNAL IMPROVEMENTS					
9	HAWK Signal	EA	$ 200,000.00	4	$ 800,000	per complete intersection
	SIGNAL IMPROVEMENTS TOTAL				**$ 800,000**	

	SUBTOTAL	**$**	**1,610,050**
25%	Contingency	$	402,513
	TOTAL CONSTRUCTION	**$**	**2,013,000**
3%	Scoping	$	60,390
5%	Environmental (CEQA)	$	100,650
15%	Design	$	301,950
15%	Construction Eng/Admin	$	301,950
	TOTAL COST ESTIMATE	**$**	**2,800,000**

Matrix of Funding Mechanisms

Table 1
Southern Blackstone Avenue Smart Mobility Plan
Summary of Locally Feasible Funding Mechanisms

Name	Funding Accessibility: Short Term	Funding Accessibility: Long Term	Description	Eligibility	Funding Availability	Funding Cycle	Historical Funding	Application Timing	Typical Scale	COMPLETE STREET FUNDING CATEGORY: Planning	Preliminary Engineering	Capital Investments: Pedestrian and Bicycles	Capital Investments: Roadways	Capital Investments: Transit
Indicates likelihood of accessing funding at significant levels over the short term versus long term:														
Indicates a likely funding source for which Blackstone Avenue Improvements would be highly competitive or are clearly eligible.														
Indicates a potential funding source, but constraints on utilization of source such as high levels of competition or low revenue potential.														
FEDERAL, STATE AND REGIONAL GRANT FUNDING SOURCES														
Active Transportation Program (ATP)			The ATP consolidates existing federal and state transportation programs, including the Transportation Alternatives Program, Bicycle Transportation Account, and State Safe Routes to School, into a single program with a focus to make California a national leader in active transportation. Projects are submitted at the State level and then Regional funds programmed by Fresno COG.	Projects that encourage increasing the proportion of trips by biking and walking, increasing safety and mobility for non-motorized users, advancing the active transportation efforts of regional agencies to achieve greenhouse gas reduction goals, enhancing public health, ensuring that disadvantaged communities fully share the benefits of the program, and providing a broad spectrum of projects to benefit many types of active transportation users.	$440 million The fund is made up of Federal funding and State SB1 and SHA funding. The funding/programming years are expected to include 19/20-22/23 funding years. Fresno COG guidelines recommend Regional-level project applications seek funding awards of $1.5 million or less. State-level amounts vary.	Every 2 years	Approximately $4.7 M for Fresno	Most recent due date was July 31, 2018 Next cycle will be summer 2020 Application cycle is roughly 10-12 weeks	$700,000	●	●	●		●
Surface Transportation Block Grant Program (STBG)			Provides flexible funding that may be used by states and localities for projects to preserve and improve the conditions and performance on any federal-aid highway, bridge, and tunnel projects on any public road, pedestrian and bicycle infrastructure, and transit capital projects. Funds of this program are intended to be directed to projects and programs for a broad variety of highway, road, bridge, and transit work. Federal funds programmed regionally by Fresno COG.	The FAST Act continues all prior STP eligibilities.	$11-12 billion per fiscal year at the Federal level. Local Agencies may submit a maximum of 10 projects for consideration and must demonstrate dedicated and available matching funds.	Every 2 years	Approximately $28.0 M for Fresno	Next cycle will be fall 2019 Application cycle is roughly 7-8 weeks	$1,300,000	●	●	●	●	●
Congestion Mitigation and Air Quality Improvement Program			Funds projects in nonattainment and maintenance areas that reduce transportation related emissions. Provides a flexible funding source to state and local governments for transportation projects and programs to help meet the requirements of the Clean Air Act. Federal funds programmed by Fresno COG.	Eligible activities under the program include transit system capital expansion and improvements that are projected to realize an increase in ridership; travel demand management strategies and shared ride services; pedestrian and bicycle facilities and promotional activities that encourage bicycle commuting. Projects must be included in MPO's current transportation plan and TIP.	The FAST Act provides $2.3-2.5 billion each year on the Federal level. The program has provided over $30 billion to fund more than 30,000 transportation related environmental projects for State DOTs, metropolitan planning organizations, and other sponsors.	Every 2 years	The 2017-18 funding cycle for the Fresno Region was approximately $20.8 M and typically increases every year for inflation.	Next cycle will be fall 2019 Application cycle is roughly 8-10 weeks	Varies, last cycle ranged from $150,000 - $3.5 M		●	●		●
Highway Safety Improvement Program (HSIP)			HSIP is a core Federal-aid program with the purpose of achieving a significant reduction in traffic fatalities and serious injuries on all public roads. The program aims to improve pedestrian and bicycle safety, install vehicle-to-infrastructure communication equipment, pedestrian hybrid beacons, roadways that provide separation between pedestrians and motor vehicles, and other physical infrastructure.	HSIP funds must be used for safety projects that are consistent with the State's strategic highways safety plan and that correct or improve a hazardous road location or feature or address a highway safety problem.	Under the FAST Act, $2.2-2.4 billion is funded each year at the Federal level.	Every 1-2 years	<u>State Level Funding</u> Cycle 1 $33.4 M for 10 projects Cycle 2 $66.6 M for 173 projects Cycle 3 $49.8 M for 114 projects Cycle 4 $74.5 M for 180 projects Cycle 5 $111.3 M for 222 projects Cycle 6 $150 M for 231 projects Cycle 7 $160.8 M for 182 projects Cycle 8 $216.9 M for 225 projects Cycle 9 $182 M for 221 projects	Applicants hear results 3-4 months after deadline. Latest projects were selected 12/12/18.	State average is approx. $933,000	●	●	●	●	●

Table 1
Southern Blackstone Avenue Smart Mobility Plan
Summary of Locally Feasible Funding Mechanisms

Name	Funding Accessibility: Short Term	Funding Accessibility: Long Term	Description	Eligibility	Funding Availability	Funding Cycle	Historical Funding	Application Timing	Typical Scale	COMPLETE STREET FUNDING CATEGORY: Planning	Preliminary Engineering	Capital Investments: Pedestrian and Bicycles	Capital Investments: Roadways	Capital Investments: Transit
Indicates likelihood of accessing funding at significant levels over the short term versus long term: Indicates a likely funding source for which Blackstone Avenue Improvements would be highly competitive or are clearly eligible. Indicates a potential funding source, but constraints on utilization of source such as high levels of competition or low revenue potential.														
Affordable Housing and Sustainable Communities (AHSC) Program	●	●	The Program funds land-use, housing, transportation, and land preservation projects to support infill and compact development that reduce greenhouse gas emissions. The AHSC Program will assist project areas by providing grants and/or loans, or any combination thereof, that will achieve GHG emissions reductions and benefit disadvantaged communities through increasing accessibility of affordable housing, employment centers, and key destinations via low-carbon transportation resulting in fewer vehicle miles traveled through shortened or reduced trip length or mode shift from Single Occupancy Vehicle use to transit, bicycling, or walking.	Activities that are eligible for the program include the following: affordable housing developments, housing-related infrastructure, sustainable transportation infrastructure, transportation-related amenities, and program costs associated with active transportation, transit ridership, or air pollutant reduction programs.	Guidelines change annually, most recently maximum AHSC Program loan or grant award or combination thereof is $20 million with a minimum award of at least $1 million in TOD Project Areas and $500,000 in ICP and RIPA Project Areas 50% of funds are set aside for Affordable Housing Developments, and 50% of funds are set aside for projects benefitting Disadvantaged Communities. Funding is provided by the Greenhouse Gas Reduction Fund (GGRF).	Annually	State Level Funding for Transportation Infrastructure Cycle 1 $68 M for 24 projects Cycle 2 $69.4 M for 50 projects Cycle 3 $100.3 M for 7 projects	Current applications are due Feb. 11, 2019. Awarded Summer 2019	State average is $6.2 M	Soft costs limited to 10% of AHSC program award	Soft costs limited to 10% of AHSC program award	●	●	●
Measure C	●	●	Authorized in November 2006 by Fresno County voters to continue a half cent retail transaction and use tax from July 1, 2007 through June 30, 2027. Over the 20 year extension timeframe, the City is anticipated to receive over $260 million in local transportation funds, or approximately $13 million annually.	Approximately 15 percent of revenues are provided to local agencies for discretionary use on needed transportation improvements. Approximately 3 percent of funding is available for significant capital improvements to the Class I facility system. Approximately 1 percent of funds are available to fund significant improvements to the existing and planned bicycle facilities and systems. The TOD Subprogram funds projects that reduce vehicle trips, improve air quality, and provide access to physical activity.	City of Fresno anticipated to receive $260 million in flexible local transportation funds, or approximately $13 million annually.	--	--	--	--		●	●	●	●
Measure P	●	●	The ordinance is set to be voted on the November 6, 2018 ballet. The initiative proposes a 3/8 percent sale and use tax within the City of Fresno for a period of 30 years. It is expected that the ordinance will raise approximately $37.5 million annually.	The funds will be used in the following ways: - Maintaining clean and safe parks; - New parks and recreational activities; - Youth and senior recreation, after-school programs, and job training; - Improved walking and biking trails, the San Joaquin River Parkway, and beautification of streets; and - Expanded access to arts and culture.	Approximately $4.2 million will be available for improvements of streets.	--	--	--	--	●		●	●
Regional Sustainable Infrastructure	●		The purpose is to encourage local and regional multimodal transportation and land use planning that furthers the region's SCS and contributes to the State's GHG reduction targets.	Eligible grant-funded activities include data gathering and analysis; planning consultants; conceptual drawings and design; community surveys, meetings, charrettes, focus groups; bilingual/translation services; and community and stakeholder advisory groups.		--	--	--	--	●				

Table 1
Southern Blackstone Avenue Smart Mobility Plan
Summary of Locally Feasible Funding Mechanisms

Name	Funding Accessibility: Short Term	Funding Accessibility: Long Term	Description	Eligibility	Funding Availability	Funding Cycle	Historical Funding	Application Timing	Typical Scale	COMPLETE STREET FUNDING CATEGORY: Planning	Preliminary Engineering	Capital Investments: Pedestrian and Bicycles	Capital Investments: Roadways	Capital Investments: Transit
Indicates likelihood of accessing funding at significant levels over the short term versus long term:														
Indicates a likely funding source for which Blackstone Avenue Improvements would be highly competitive or are clearly eligible.														
Indicates a potential funding source, but constraints on utilization of source such as high levels of competition or low revenue potential.														
San Joaquin Valley Air Pollution Control District Bikeway Incentive Program	●	●	The purpose of this program is to fund the construction of new bikeway projects through the development of widespread, interconnected network of bike paths, lanes or routes, as well as improving the general safety conditions for commuter bicyclists for the benefit of commuter bicycling.	Three eligible project types: - Class I Bikeway (Bike Path): Provides a completely separated right of way for the exclusive use of bicycles and pedestrians. - Class II Bikeway (Bike Lane): Provides a striped lane for one-way bike lane on a street or highway. - Class III Bikeway (Bike Route): Provides for shared use with pedestrians or motor vehicle traffic. In order to be considered to receive funding, the proposed project must be located within the SJVAPCD boundaries. The bikeway must reduce vehicle miles traveled, single occupancy vehicle travel, and/or potential vehicle trip replacements needs to be included with the application submission.	Class I Bikeway receives up to $150,000. Class II and III Bikeways receive up to $100,000.	--	--	--	--	●		●	●	
LOCAL FUNDING SOURCES														
Property and Business Based Improvement District (PBID)	●	●	PBID places a special assessment on property within the district boundaries to fund specific services and improvements within the district. Funds are collected by the local government and are then directed to the PID, which is operated by a nonprofit entity formed by district property owners. The PBID formation process and special assessment levy requires voter approval and typically requires up to 12 months.	Revenues are commonly used to augment district services, such as sanitation, security, marketing and economic development initiatives, but can also be used to fund small- and large-scale capital improvements. Must demonstrate that project confers special benefit on assessed properties.	Dependent on property assessment levels.	--	--	--	--		●	●	●	●
Multifamily Improvement District (MID)	●	●	MID law is focused on providing services to benefit apartments, condominiums, mobile home parks, and other high density residential uses. These types of districts are most commonly used in disadvantaged communities to augment existing services and promote activities beneficial to the district. Formation requires a petition signed by two-thirds of the property or business owners within the proposed district and a detailed Management Plan identifying the proposed assessment methodology and other pertinent elements of the proposed District. If approved, the MID will be in place for 5 years and can be renewed for successive 10 year periods.	MID assessments may pay for a variety of activities and improvements, including supplemental security services and improvements, parking, sidewalks, street lighting, and landscaping. Must demonstrate that project confers special benefit on assessed properties.	Dependent on property assessment levels.	--	--	--	--		●	●	●	●
Development Impact Fees	●	●	A development impact fee is an ordinance-based, one-time charge on new development designed to cover a "proportional-share" of the total capital cost of necessary public infrastructure and facilities. The creation and collection of impact fees are allowed under AB 1600 California Code Section 66000, known as the Mitigation Fee Act. This lay stipulates that only the portion of costs attributable to new development can be included in the fee.	Improvements needed to accommodate demand for infrastructure and public facilities generated by new growth. Cannot allocate costs of existing deficiencies to new development.	Portion of facility costs serving new development. Constrained by development feasibility considerations.	--	--	--	--		●	●	●	●

Table 1
Southern Blackstone Avenue Smart Mobility Plan
Summary of Locally Feasible Funding Mechanisms

Name	Funding Accessibility: Short Term	Funding Accessibility: Long Term	Description	Eligibility	Funding Availability	Funding Cycle	Historical Funding	Application Timing	Typical Scale	COMPLETE STREET FUNDING CATEGORY: Planning	Preliminary Engineering	Capital Investments: Pedestrian and Bicycles	Capital Investments: Roadways	Capital Investments: Transit
Indicates likelihood of accessing funding at significant levels over the short term versus long term:														
Indicates a likely funding source for which Blackstone Avenue Improvements would be highly competitive or are clearly eligible.														
Indicates a potential funding source, but constraints on utilization of source such as high levels of competition or low revenue potential.														
DEVELOPMENT-BASED FUNDING SOURCES														
Value Capture Funding Tools	🟡	🟡	Refers to a variety of funding tools and techniques that jurisdictions may employ to participate in the financial benefits conveyed by publicly supported infrastructure investments. Typically, when the public sector creates value through infrastructure investment or other means, landowners enjoy a financial gain. Value capture occurs when the public sector reclaims some of the value created by its activities. May be secured via development agreements, community benefit zoning, public private partnerships.	Varies. Particularly applicable to transportation improvements that provide improved market access, new development opportunities, and other economic value enhancements beyond what would exist under normal or baseline conditions.	Varies based on structure of program. Viability limited by development feasibility and ability for new development projects to accommodate additional costs.	--	--	--	--		●	●	●	●
Enhanced Infrastructure Financing District (EIFD)	🟡	🟢	Local agencies can establish an Enhanced Infrastructure Financing District (IFD) for a given project or geographic area of the jurisdiction. The EIFD captures incremental increases in property tax revenue from future development otherwise accruing to the county's General Fund. Requires approval by every local taxing entity that will contribute its property tax increment and also requires 55 percent voter approval to issue bonds (landowner vote if less than 12 registered voters in jurisdiction). Under current statute, debt issuance is limited to short term debt, and constrained by the timing of property tax increment growth. EIFD boundaries should carefully consider and balance objectives of maximizing capture of value increases and limited timeframe for allowable debt issuance (30 years from EIFD formation).	Funds may be used to finance public capital facilities or other specified projects of communitywide significance, including, but not limited to, highways, transit, water systems, sewer projects, flood control, child care facilities, libraries, parks, and solid waste facilities.	Based on property tax growth in district. Bond issuance typically requires available tax increment of roughly $500,000 annually. Initial debt capacity may not match need for required upfront capital costs.	--	--	--	--		●	●	●	●

Table 1
Southern Blackstone Avenue Smart Mobility Plan
Summary of Locally Feasible Funding Mechanisms

Indicates likelihood of accessing funding at significant levels over the short term versus long term:

🟢 Indicates a likely funding source for which Blackstone Avenue Improvements would be highly competitive or are clearly eligible.

🟡 Indicates a potential funding source, but constraints on utilization of source such as high levels of competition or low revenue potential.

Name	Funding Accessibility: Short Term	Funding Accessibility: Long Term	Description	Eligibility	Funding Availability	Funding Cycle	Historical Funding	Application Timing	Typical Scale	COMPLETE STREET FUNDING CATEGORY: Planning	Preliminary Engineering	Capital Investments: Pedestrian and Bicycles	Roadways	Transit
Community Revitalization and Investment Authorities (CRIA)	🟡	🟢	Allows a city, county, or a special district - or any combination of these via entering a joint powers agreement - to establish a CRIA to revitalize disadvantaged communities through planning and financing infrastructure improvements and upgrades; economic development activities; and affordable housing via tax increment financing based, in part, on the former community redevelopment law. The entities forming a CRIA must produce and adopt a CRIA Plan (Plan) that guides its revitalization programs and authorizes receipt and expenditure property tax increment revenues. The Plan must include: - Statement of principal goals and objectives - Description of the deteriorated or inadequate infrastructure and program for repair and upgrade - Housing program - A program to remedy or remove the release of hazardous substances - A program to provide funding for or otherwise facilitate the economic revitalization of the area - A fiscal analysis setting forth projected receipt of revenues and expenses over five-year planning horizon - Time limits to establishing loans, advances and indebtedness and fulfilling all the authority's housing obligations. The Plan must be adopted over a series of three public hearings subject to majority protest.	A CRIA can be created in the following two locations: 1. Areas where not less than 80 percent of the land contains census tracts or census block groups meet both of these conditions: (i) an annual median household income that is less than 80% of the statewide annual median income; and (ii) three of four following conditions: a. non-seasonal unemployment at least 3 percent higher than statewide average. b. crime rates at least 5 percent higher than statewide median. c. deteriorated or inadequate infrastructure, and d. deteriorated commercial or residential structures. 2. A former military base that is principally characterized by deteriorated or inadequate infrastructure or structures	Based on property tax growth in district. Bond issuance typically requires available tax increment of roughly $500,000 annually. Initial debt capacity may not match need for required upfront capital costs 25 percent of property tax increment revenues must be used to increase, improve, and preserve the community's supply of low and moderate income families. .	--	--	--	--	●	●	●	●	●

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Table 2
Southern Blackstone Avenue Smart Mobility Plan
Other Potential Grant Funding Opportunities

Name	Description	Eligibility	Funding Availability	Complete Street Funding Category			
					Capital Investments		
				Planning	Pedestrian and Bicycles	Roadways	Transit
Better Utilizing Investments to Leverage Development (BUILD) Transportation Discretionary Grants Program	Replaced the pre-existing TIGER grant program. Aims to enhance the America's infrastructure, which can provide support to roads, bridges, transit, rail, ports, or intermodal transportation. BUILD Transportation grants help communities revitalize their surface transportation systems while also increasing support for rural areas.	Applications are evaluated on the following merit criteria: safety, economic, competitiveness, quality of life, environmental protection, state of good repair, innovation, and partnership.	$1.5 billion (total) The maximum grant award is $25 million, and no more than $150 million can be awarded to a single state. At least 30% of funds must be awarded to projects located in rural areas.	●	●	●	●
Brownfield Area-Wide Planning Grant	Provides funding to communities to research, plan, and develop implementation strategies for cleaning up and revitalizing a specific area affected by one or more Brownfield sites.	Funding is used for a specific project area, such as a neighborhood, downtown district, local commercial corridor, old industrial corridor, community waterfront or city block, affected by a single large or multiple brownfield sites.	EPA currently offers grants every other year, as funding is available.	●			
Brownfield Assessment Grant	Provide funding for Brownfields inventories, planning, environmental assessments, and community outreach.	CDBG entitlement communities and non-entitlement communities.	Up to $200,000 to assess a site contaminated by hazardous substances, pollutants, or contaminants. Up to $200,000 to address a site contaminated by petroleum.	●			
Brownfield Cleanup Grant	Provide Funding to carry out cleanup activities at Brownfield sites owned by the applicant.	CDBG entitlement communities and non-entitlement communities.	Up to $200,000 per site. Due to budget limitations, no entity can apply for funding cleanup activities at more than three sites.	●			

Table 2
Southern Blackstone Avenue Smart Mobility Plan
Other Potential Grant Funding Opportunities

Name	Description	Eligibility	Funding Availability	Complete Street Funding Category			
					Capital Investments		
				Planning	Pedestrian and Bicycles	Roadways	Transit
Bus and Bus Facilities Infrastructure Investment Program	Makes federal resources available to states and direct recipients to replace, rehabilitate and purchase buses and related equipment and to construct bus-related facilities including technological changes or innovations to modify low or no emission vehicles of facilities.	Designated recipients that operate fixed route bus service or that allocate funding to fixed route bus operators; state or local government entities; and federally recognized Indian tribes that operate fixed route bus services.	FTA issued a notice of funding for approximately $366.3 million in fiscal year 2018.				●
Community Challenge Planning Grant	Fosters reform and reduces barriers to achieving affordable, economically vital, and sustainable communities. Such efforts may include amending or replacing local master plans, zoning codes, and building codes, either on a jurisdiction-wide basis or in a specific neighborhood, district, corridor, or rector to promote mixed-use development, affordable housing, the reuse of older buildings and structures for new purposes, and similar activities with the goal of promoting sustainability at the local or neighborhood level.	State and local governments, including US territories, tribal governments, political subdivisions of State or local governments, and multi-State or multijurisdictional groupings.	$28 million (total)	●			
Community Development Block Grant (CDBG) Program	Provides annual grants on a formula basis to states, cities, and countries to develop viable urban communities by providing decent housing and a suitable living environment, and by expanding economic opportunities, principally for low- and moderate-income persons.	Compliance under Title 1 of the Housing and Community Development Act of 1974, Public Law 93-383, as amended 42 USC 530.1.	$3,023,000 (total as of 2014)	●			
Economic Development Administration (EDA)	Guided by the basic principle the sustainable economic development should be locally-driven, EDA works directly with communities and regions to help them build the capacity for economic development based on local business conditions and needs. EDA's grant investments in planning, technical assistance, and infrastructure construction are designed to leverage existing assets to support the implementation of economic development strategies that make it easier for businesses to start and grow.	Funded projects support the DOC Strategic Plan be leading to the creation and retention of jobs and increased private investment, advancing innovation, enhancing the manufacturing capacities of regions, providing workforce development opportunities and growing ecosystems that attract foreign direct investment.	There is $587 million available to eligible grantees in communities impacted by natural disasters, $16 million available under the Regional Innovation Strategies Program, and $7.4 million available for the EDA University Center Economic Development Program.	●		●	●

Table 2
Southern Blackstone Avenue Smart Mobility Plan
Other Potential Grant Funding Opportunities

Name	Description	Eligibility	Funding Availability	Complete Street Funding Category			
					Capital Investments		
				Planning	Pedestrian and Bicycles	Roadways	Transit
Entitlement Communities Grant	A part of the Community Development Block Grant Program. The Entitlement Program provides annual grants on a formula basis that entitles cities and counties to develop viable urban opportunities, principally for low- and moderate-income persons.	Eligible grantees as follows: principal cities of Metropolitan Statistical Areas, other metropolitan cities with populations of at least 50,000, and qualified urban communities with populations of at least 250,000.	70% of funding is allocated to metropolitan cities and urban counties, The amount of each entitlement grant is determined by statutory formula, which uses several objective measures of community need, such as poverty, population, housing overcrowding, age of housing, and growth lag.	●			
Fixing America's Surface Transportation Act (FAST)	The FAST Act establishes and funds new programs to support critical transportation projects to ease congestion and facilitate the movement of freight on the Interstate System and other major roads. The Act improves mobility on America's highways, creates jobs and supports economic growth, and accelerates project delivery and promotes innovation.	Eligibilities are the same for those under TAP. In addition to TAP, the FAST Act newly allows an urbanized area with a population of more than 200,000 to use up to 50 percent of its sub allocated TA fuds for any STBG-eligible purpose.	The FAST Act authorizes $305 billion over fiscal years 2016 through 2020 for highway, highway and motor vehicle safety, public transportation, motor carrier safety, hazardous materials safety, rail, and research, technology, and statistics programs. The FAST Act authorizes $226.3 billion in Federal funding for fiscal years 2016 through 2020 for road, bridge, bicycling, and walking improvements.		●	●	●
Job Access and Reverse Commute Program	Its goals are to improve access to transportation services to employment and employment related activities for low-income individuals and welfare recipients and to transport residents of urbanized areas and non-urbanized areas to suburban employment opportunities.	Funding is provided to projects that provide access to transportation services to employment and employment related activities for welfare recipients and eligible low-income individuals, and transport residents of urbanizes areas to suburban employment opportunities, regardless of income.	$1.4-3 million (total)				●

Table 2
Southern Blackstone Avenue Smart Mobility Plan
Other Potential Grant Funding Opportunities

Name	Description	Eligibility	Funding Availability	Complete Street Funding Category			
					Capital Investments		
				Planning	Pedestrian and Bicycles	Roadways	Transit
Low or No Emission Vehicle Program	Provides funding to state and local governmental authorities for the purchase or lease of zero-emission and low-emission transit buses as well as acquisition, construction, and leasing of required supporting facilities.	Direct recipients of FTA grants under the Section 5307 Urbanized Area Formula program, states, and Indian Tribes.	Under the FAST Act, $55 million per year is available.				●

Table 2
Southern Blackstone Avenue Smart Mobility Plan
Other Potential Grant Funding Opportunities

Name	Description	Eligibility	Funding Availability	Complete Street Funding Category			
					Capital Investments		
				Planning	Pedestrian and Bicycles	Roadways	Transit
Our Town Program	Our Town is the National Endowment for the Arts' creative place making grants program, These grants support projects that integrate arts, culture, and design activities into efforts that strengthen communities by advancing local economic, physical, and/or social outcomes. It lays the groundwork for systematic changes that sustain the integration of arts, culture, design into strategies for strengthening communities.	All applicants require partnerships that involve at least two primary partners as defined by the following guidelines: a nonprofit organization and a local governmental entity. Eligible applicants are nonprofit tax-exempt organizations, and local governments.	$25,000-200,000 for Place-Based Projects $25,000 to $100,000 for Knowledge Building Projects	●			
Sustainable Communities Regional Planning Grant	Supports locally-led collaborative efforts that bring together diverse interests from the many municipalities in a region to determine how best to target housing, economic and workforce development, and infrastructure investments to create more jobs and regional economic activity.	The program places priority on investing in partnerships, including nontraditional partnerships (arts and culture, recreation, public health, food systems, regional planning agencies and public education entities) that translate the Six Livability Principles into strategies that direct long-term development and reinvestment, demonstrate a commitment to addressing issues of regional significance.	HUD has awarded over $165 million to 74 regional grantees in 44 states.	●			
Transit Capital Investment Program	Through the Federal Transit Administration, the Program funds light rail, heavy rail, commuter rail, streetcar, and bus rapid transit projects. Provides capital assistance to new fixed guideway systems, new and replacement buses and facilities, as well as the modernization of existing rail systems.	Funding recommendation is driven by the following: "readiness" of the project (technical capacity, firm and final cost estimate), overall rating, and the amount of available funds versus the number and size of the projects in the pipeline	$2.3 billion per year (total)				●
Urban Area Formula Grant	Makes federal resources available to urbanized areas and to governors for transit capital and operating assistance in urbanized areas and for transportation-related planning.	Funding is made available to designated recipients that are public bodies with the legal authority to receive and dispense federal funds.	Funds are available the year appropriated plus five years.	●			●
				Fund Source			

Table 3
Southern Blackstone Avenue Smart Mobility Plan
Complete Street Case Studies

Project	Location	Lead Agency	Total Cost	Year	Description	Complete Street Components	Funding Sources	Source Link
Bryan Avenue	Lexington, KY	Lexington-Fayette Urban County Government	$43000	2018	Two intersections along Bryan Avenue were dangerous and confusing places for people to walk, bike, and drive due to unusual turning angles and missing crosswalks. The project aimed to redesign the intersections by redirecting cares and adding crosswalks and pedestrian refuges. This area has low rates of car ownership and are more likely to depend on public transit. The intersections highlighted in the project have no marked crosswalks. The landscape median was extended to create a pedestrian refuge, which was indicated with reflective posts. In addition, the intersection was redesigned to have a more conventional right-angle corner, which would encourage people to come to a more complete stop before turning.	Corridor access management: By extending the median past the intersection of Bryan and East Loudon Avenues, Lexington's demonstration project limited the movement of cars across the intersection to make the street safer and more predictable. Pedestrian crossing island: Introduced a new crosswalk at the intersections with a protected refuge to make it easier and safer for people to cross the street.	Funded by a grant from the Safe Streets Academy and funding from to city grants - Division of Traffic Engineering and Division of Environmental Services through Citizens Environmental Academy.	https://smartgrowthamerica.org/lexington-ky-demonstration-project-bryan-avenue-intersections/
Curry Ford Road	Orlando, FL	City of Orlando	$75,000	2018	Orlando has a serious traffic safety problem, especially for people walking. In response, Orlando launched a demonstration project on Curry Ford Road, a commercial street with a dangerous speeding problem and a history of crashes involving people walking and biking. By collaborating with Orange County staff and with local elected officials, the team transformed a five-lane speedway into a three-lane Complete Street with protected cycle tracks and a mid-block crossing with a painted pedestrian refuge. The transformation of Curry Road successfully slowed down traffic and reduced crash incidences, and created a comfortable space for people to walk, bike, and shop. Travel times for cars did not increase significantly.	Road diet: Slowed down traffic by reducing the number of travel lanes and replacing the reclaimed spaces with protected cycle track. Pedestrian crossing island: Introduced a new mid-block crosswalk with a pained pedestrian refuge to make it easier and safer to cross the street.	The City and County, Smart Growth America and a federal grant will be paying for the reconfiguration.	https://smartgrowthamerica.org/orlando-fl-demonstration-project-curry-ford-road/
Del Paso Boulevard	Sacramento, CA	City of Sacramento	$4.4 million	2013	The Boulevard suffered from deteriorating and non-existent sidewalks. Areas with sidewalks have buckled concrete due to overgrown trees. In addition, there was a lack of traffic signals and street lights at the intersection near the Globe Station, which made pedestrian walkability difficult. The proposed street plan was geared toward improving these issues while at the same time preserving the street's historical background. The cost of the project was approximately $2.9 million, which was funded by the Sacramento Area Council of Governments as well as Community Development Block Grants. The developers created an open door policy, which residents and business owners to stop in and ask questions about the construction's progress. This policy allowed for expedited decision making on alternative construction paths. The safety and aesthetic improvements that were made helped create a visitor-friendly environment for existing businesses while laying the groundwork for future infill and transit-oriented development. The project won the American Public Works Association Sacramento Chapter's Public Works Project of the Year Award in 2013.	Median refuges and bulb-outs: Shortened the crossing distances at major crosswalks, which are now ADA compliant. Sidewalk improvements: New benches were installed to provide seating near bus stops and businesses. New, wider, and level sidewalks were lined with shade trees and native shrubs and grasses. Lighting installations: LED lighting was installed near the light rail station to improve pedestrian visibility. Drainage: A new irrigation system fixed the drainage issues along the Boulevard, and new moisture and weather sensors improved water-efficiency, which cut maintenance costs. Transit access: New signal coordination for the light rai line, bus pull-outs, and a new traffic signal near the light-rail station. Design embellishments: Reinforced the street's historic roots by incorporating brick imprinted with horseshoes and racing horses in the tree wells along the Boulevard, that complement the silver horse statues from an earlier project.	Funding was completed by state, federal, and local funding sources.	https://smartgrowthamerica.org/no-horsing-around-on-del-paso-boulevard-in-sacramento-ca/
Inner Loop East Transformation Project	Rochester, NY	Stakeholders	$20,995,036	2014 - 2017	Thanks to the assistance of a federal TIGER grant (covered 80% of the cost of the $21 million project) and the support of the community, Rochester converted an outdated urban expressway into a walkable, bikeable Complete Street boulevard. The project reconnects the neighborhoods once divided by the expressway and works toward achieving the goals set forth by the Complete Street ordinance and Master Plan. The project was to fill in a 4,500-foot stretch of the Inner Loop to crease a new Complete Street boulevard at the street level. The transformation is expected to result in improvements to traffic safety, increased public and private investment, job creation and sustainability by improving infrastructure to support walking and biking.	Corridor redesign: Filled in a portion of the six-lane sunken expressway, converted the existing surface-level streets that run alongside the Inner Loop into green space and land for redevelopment. In addition, the city eliminated 12 lanes of roadway designed exclusively for high-speed traffic, freeing up 5.7 acres of land for mixed-use development along a new, walkable boulevard. The redesign also includes landscaping, protected cycle tracks, wide sidewalks, an frequent crosswalks. There is a new connection of nearby residential neighborhoods to the East End, a downtown district, and reported the portion of the street grid formerly blocked off by the Inner Loop.	Funding provided by the TIGER Grant ($16,781,036), State Match ($3,800,000), and City Match ($414,000).	https://smartgrowthamerica.org/best-complete-streets-initiatives-rochester-ny/
Plaza de Las Cruces (Downtown Master Plan)	Las Cruses, NM	City of Las Cruses	$1,677,325.65 - $2,280,707.00	2005	Las Cruces is one of many cities across the US creating a more mixed-use, accessible, and walkable community. The Downtown master plan recognizes the strong connection between land use and transportation. This plan was crucial to the city's adoption of a form-based code and advancement of Complete Streets initiatives including a the project, Plaza de Las Cruces. Plaza de Las Cruces is a public gathering space located in the center of the town. This project creates a space that people want to go to making sure that people can actually get there.	Form-based codes: A tool that cities can use to support mixed-use development and encourage more walkable, diverse communities. They focus on the physical form of buildings to create a streetscape that matches the community's vision. Additionally, it no longer mandates the creation of new parking spaces for new businesses, effectively eliminating parking minimums. Road diets and wider sidewalks: Strengthened access to the plaza and the transportation network as a whole.	Federal sources include the Community Development Block Grant (CBDG), HOME Investment Partnership, Low Income Housing Tax Credit (LIHTC), Transportation Equity Act, HUD fund for local CDBG loans and "floats," and new market tax credits. State sources include Public Project Revolving Loan Fund, Legislative appropriation, GRIP, historic tax credits, and the New Mexico Community Development Loan Fund.	https://smartgrowthamerica.org/best-complete-streets-initiatives-las-cruces-nm/

Project	Location	Lead Agency	Total Cost	Year	Description	Complete Street Components	Funding Sources	Source Link
Neighborhood Traffic Calming	South Bend, IN	City of South Bend	$8,000	2018	The neighborhood streets in South Bend suffered from dangerous speeding problems. In response, the City tested traffic-calming tools, such as traffic circles, chicanes, and bump outs. In addition, educational signs were placed to teach people of the new street designs and their safety features. After the City's demonstration project, there was an increase (between 4-9%) of people driving 25 miles per hour slower. South Bend generated support from the community and from elected officials for future traffic calming projects and other safety improvements.	Traffic circles: Add a round center island to intersection. Drivers must slow down and change directions to navigate around the circle. Bump outs: Narrow streets and intersections, which encourage people to slow down. Chicanes: Pairs of bump outs that introduce curves into otherwise straight roads and encourage people to drive 10-30 percent slower.	Grant funding received from Smart Growth America.	https://smartgrowthamerica.org/south-bend-in-demonstration-project-neighborhood-traffic-calming/
Warsaw Riverfront Trails	Warsaw, MO	MODOT and US Army Corps of Engineers	$11 million	2006	In 2006, Warsaw developed its 2006 Trail Masterplan through a collaborative planning process. Despite its small size and limited budget, Warsaw successfully implemented its extensive trail network and kicked off a broader Complete Street program through planning, partnerships, and personnel. The City's trails and bikeway plan connects Warsaw to the region and reaching many destinations. Complete Streets will fill in the gaps in the plan and allow easy, safe access to every part of the city. Warsaw adopted a complete street policy in which there were updates to the city's transportation improvement plan to harmonize with complete streets (bike lanes on all primary streets and shared bicycle facilities on all secondary streets), as well as updates to planning and zoning regulations that encourage and require adherence to complete street standards on roads and rights-of-way in any new development. There is a primary focus on connecting new developments to the trail network where possible.	Bike lanes and facilities: Allows the entire city to be safe and accessible for all users of the transportation system, including those who walk, bicycle, use transit, for all ages and all ability levels.	Warsaw utilized a P3 approach in order to secure 45 grants over the course of two decades. This includes over $9 million in federal funds, and almost $2 million in state funds. Funding programs include Transportation Alternative Program, Recreational Trails Program, Community Development Block Grant, and water preservation grants.	http://mobikefed.org/2016/03/warsaw-missouri-adopts-missouris-29th-complete-streets-policy

Table 4
Southern Blackstone Avenue Smart Mobility Plan
Complete Street Ordinances

Location	Policy	Date Passed	Description	Source Link
Battle Ground, WA	Resolution No. 15-04	2015	The City will plan for, design, construct, operate, and maintain an appropriate and integrated transportation system that will meet the needs of motorists, pedestrians, bicyclists, wheelchair users, transit vehicles and riders, freight haulers, emergency responders, and residents of all ages and abilities. Transportation facilities that support complete streets include pavement markings and signs; street and sidewalk lighting; sidewalk and pedestrian safety improvements; bicycle accommodations, and others.	http://mrsc.org/getmedia/0850d064-9017-4465-912c-72d030495a94/b3complete.pdf.aspx
California	AB 1538	9/30/2008	This bill enacts the Complete Streets Act of 2008. The bill requires the Office of Planning and Research to amend its "General Plan Guidelines" for the circulation element to specify how local officials can accommodate safe and convenient travel. This bill also requires cities and counties to modify their circulation elements to plan for a balanced multi-modal transportation network that meets the needs of all users of streets, roads, and highways.	http://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=200720080AB1358
Kansas City, MO	Ordinance No. 170949	12/7/2017	The City shall develop a safe, reliable, efficient, integrated, and connected multimodal transportation system that will promote access, mobility, and health for all users and will ensure that the safety and convenience of all users of the transportation system are accommodated, including pedestrians, wheelchair users, bicyclists, public transportation users, motorists, and people of all ages and abilities. In addition, the City shall incorporate green infrastructure, innovative storm water management, street trees, and appropriate lighting in transportation projects.	http://cityclerk.kcmo.org/LiveWeb/Documents/Document.aspx?q=8o49w2zA0CSTnmeH9aHKkOg64CS%2BkNfm9pNSr3l7caKAubnyrUeDhTRcSROTTz%2Fn
Ocean Shores, WA	Ordinance No. 916	12/10/2012	This policy will be used when creating future transportation projects as an opportunity to improve public streets for pedestrians, bicyclists, and transit users regardless of age or ability. The City wants to create convenient, enjoyable connections from the beach, to the hotel district, and to the business district to promote tourism and create economic development opportunities while creating a more sustainable community.	http://mrsc.org/getmedia/8d9b37af-b18b-450b-93c9-f485493f7c58/o27o916.pdf.aspx
Rancho Cucamonga, CA	Ordinance No. 857	12/19/2012	The purpose of this ordinance is to implement the General Plan's goals of providing Complete Streets and to enable the streets of the City to provide safe, convenient, and comfortable routes for walking, bicycling, and public transportation that encourage increased use of these modes of transportation, enable convenient travel as part of daily activities, improve the public welfare by addressing a wide array of health and environmental problems, and meet the needs of all users of the streets, including bicyclists, children, persons with disabilities, pedestrians, users of public transportation, and seniors, while continuing to maintain a safe and effective transportation system for motorists and movers of commercial goods.	https://www.smartgrowthamerica.org/app/legacy/documents/cs/policy/cs-ca-ranchocucamonga-ordinance.pdf
Seattle, WA	Ordinance No. 112386	4/30/2007	Known as the Complete Streets ordinance, which directs Seattle DOT to design streets for pedestrians, bicyclists, transit riders, and personas of all abilities, while promoting safe operation for all users, including freight. The ordinance states guiding principles and practices so that transportation improvements are planned, designed and constructed to encourage walking, bicycling and transit use while promoting safe operations for all users.	http://clerk.ci.seattle.wa.us/~scripts/nph-brs.exe?d=CBOR&s1=115861.cbn.&Sect6=HITOFF&l=20&p=1&u=/~public/cbor2.htm&r=1&f=G#hb